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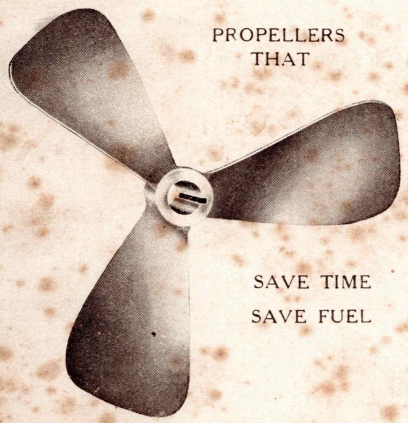

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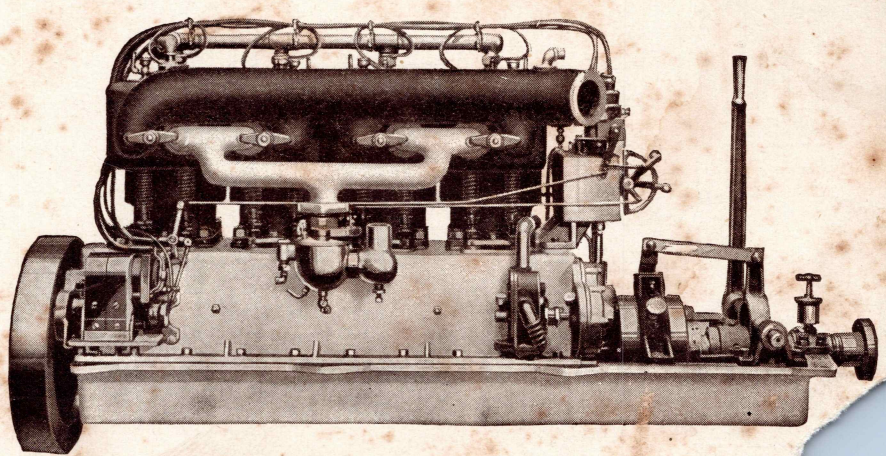

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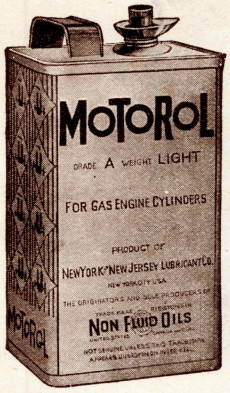

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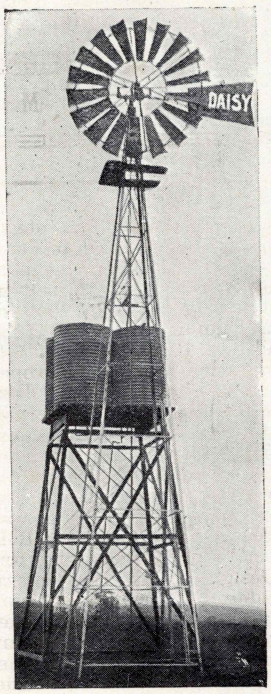

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Published Monthly by the proprietors, Harry H. Tombs Ltd.
10 Willis Street ——— Wellington, New Zealand

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Annual Subscriptions:—To any address 7/6 post free. Note: 1/- will be allowed on this account if paid in advance.

Remittances should be made by Post Office or Money Order. All cheques, plus exchange, to be made payable to Harry H. Tombs Ltd., and sent direct to P.O. Box 481, Wellington.

All communications to be addressed to "The Proprietors, Progress,' Box 481, Wellington."

Advertising Rates will be sent on application. The value of 'Progress" as an advertising medium is rapidly becoming recognized by advertisers. Circulation considered it is the cheapest advertising medium of its kind in the Dominion.

The Editor will at all times be glad to receive Illustrated Articles on subjects of interest for consideration, provided the articles are short and to the point, and the facts authentic.

Should subscribers continue to receive copies of this journal after expiry of current year, it will be accepted as an intimation that they are desirous of subscribing for a further period of twelve months.

In case of change of address, or irregularity of this paper's delivery, subscribers should send immediate notice.

Publisher's Announcements

OUR SEPTEMBER ISSUE

This issue will be a Canterbury Building Issue, and will contain as principal feature the new scheme for the improvement of Cathedral Square, Christchurch, by S. Hurst Seager, F.R.I.B.A. This scheme to beautify Christchurch is at present occupying the minds of the Mayor and local bodies interested, and already ways and means are being considered to raise the necessary funds. A competition will be inaugurated for architects, and the winner of the prize will be appointed to execute the work. In addition to this feature there will be representative work of Christchurch and Timaru architects, with profuse illustrations of recent buildings erected.

ASTRONOMY SECTION

Owing to pressure of space in this issue, Miss Mary Proctor's article has been postponed till next month. "The "Story of the Moon" will be substituted for "Three Great Observatories," which was announced for August.

Sixteenth Competition for Architectural Students

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to be built on a level site of ample size, the section being a corner one with the frontages to two roads of equal importance, one on the west and the other on the north side. The building is to accommodate eighty, excluding the Choir. There shall be seating in the Choir for eighteen. There shall be a vestry, and space shall be provided for a small pipe organ. The bell may be either in a tower or in a bell cote. The walls to the height of side top plate shall be of some permanent material, and the roof can be of any pitch.

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The judge wishes the designer to have full scope for his artistic fancies, and so does not suggest any style nor limit the cost. The following points ought to be regarded. There should be at least six feet between the fronts of Choir stalls. The central passage should not be less than 4 feet wide. Seats should be at least 2ft. 10in. between centre and centre, and for a mixed congregation at least 18in. should be allowed along each seat (the proper distance is 20in. for an adult and 14in. for a child). Between the front edge of kneeling step in chancel and the Choir seat end at least 2ft. 6in. should be allowed for communicants. There need be no heating chamber. The drawings shall be made to a scale of 8 feet to the inch and only a plan, two elevations and a section are necessary, but other drawings, including a perspective, will be appreciated.

Mr. F. de J. Clere, F.R.I.B.A., of Wellington, has kindly consented to act as judge for this competition.

Designs must be sent in, finished as above, under a nom-de-plume, addressed to "Progress," 10 Willis Street, Wellington, and marked clearly "Sixteenth Prize Competition" on outside, with a covering letter giving competitor's name and address. Designs to be in by Aug. 20th.

The Editor reserves the right of publishing any or all the designs submitted, and while every care will be taken of drawings, no responsibility is accepted should any loss or damage be sustained

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VOL. VIII. No. 12. MONTHLY [REGISTERED AS A NEWSPAPER]

PROGRESS

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THE SCIENTIFIC NEW ZEALANDER

Devoted to the Interests of Industry, Architecture, Science, Engineering, Inventions and the Home

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WELLINGTON, AUCKLAND, CHRISTCHURCH, AND DUNEDIN, NEW ZEALAND, AUGUST, 1913

Editorial Comment

Mr. Winston Churchill's announcement of the intention of the Admiralty to use oil fuel on a larger scale points to the possibility of discarding coal altogether, as the northern English mining journal clearly foresees and protests against. It also makes one wonder where all the petrol supplies of the future will come from. In this connection it is well to remember that the demand from the air and the roads for motor fuel is likely to increase far more than the demand from the fleets of the world. And this demand will be still more increased by the use of oil in the merchant ships of all nations. All of which points to the desirability of "getting a move" on the projects that are so numerous for making New Zealand take a foremost place among the oil producers of the world. Once we prided ourselves on the universal evidence of signs of petroleum throughout the Dominion, but it turns out that this is by no means a cause for rejoicing, because there is petroleum in every country in the world in some shape or other. The thing to be proud of is the ownership of areas of a concentrated oilfield. At Baku a spouter well once delighted its Russian owners with a yield of six million gallons a day kept up for months, while another tantalised them with a similar yield, which took fire and went wasting away for a similar period. Nothing like that has been approached here. But nothing like the time has been spent on the industry that was spent at Baku, which is the cradle of the ancient religion of fire worship. It was there that men learned to admire and wonder at, and finally to worship, the fire that was never extinguished. In that region it is recorded that fires blazed on the surface of the earth for centuries upon centuries. Evidently natural gas from the oilfields beneath, set on fire by some accident, and proved to be of inextinguishable force. In those days they could not refine the petroleum, and therefore could not use it for lighting indoors. Outside it flared much by night. But the chief use of the products of petroleum was in building, for the bitumen solidified and became a very tenacious, enduring cement. Nineveh and Babylon were built with its aid, and later on the bricks of Memphis and Thebes were held together by the same. In the days that followed this art was lost. When petroleum came to the knowledge of western men, it was regarded chiefly as a medicine, and an invaluable medicine for all the ills to which flesh is heir. But as the medicinal consumption is necessarily limited, other uses had to be found. Curiously enough, when the colonists crossed the Alleghenies into the Ohio countries, they found petroleum when digging for salt, and the petroleum got so much volume more than the salt in the pits that it was voted a nuisance. At last somebody found out how to refine it, and then Colonel Gage invented the method of sinking iron pipes and operating the mining tools down at the bottom of them. This started the Pennsylvanian fields, and the first oil boom, which, bursting, ruined thousands of famalies throughout the United States. From that the way out is marked by inventions of all sorts, with the pipe carriage system at the head of them. At this point you have but to shut your eyes and dream of Rockefeller and the Standard Oil Trust, and the fields of California, of Baku, of Burma, of Canada, of Mexico, and many other countries. It is with a Mexican company, by the way, that the British Admiralty has, according to Mr. Churchill, made its far-reaching arrangements.

* * * * *

In comparison with these things, it seems a poor joke to turn to the oilfields of New Zealand. But if the surface indications are anything, then there may be an enormous field, even a series of enormous fields. We have not yet found spouters of millions of barrels a day. But we have paid the bonus for the first half-million gallons, and soon the bonus for refining an equally substantial quantity will have to be paid. True, a good deal of money has been lost in the past. But the amount of money lost in the pioneering of the American fields was very much more—as much more in proportion as the profits of to-day there exceed the profits of to-day here. Our people failed, not becaues the petroleum was not, but because the money gave out. The leader of the movement, the Hon. O. Samuel, told the Council the other day

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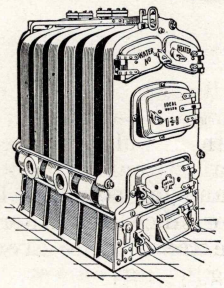

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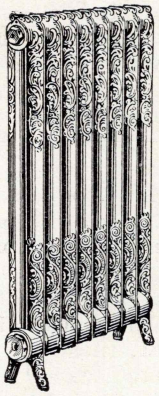

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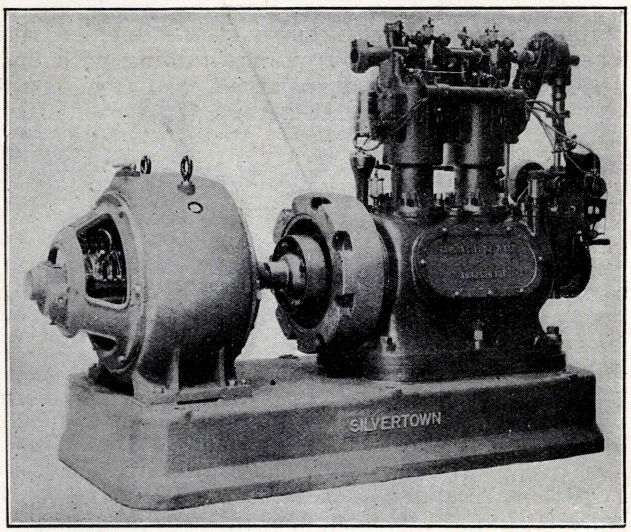

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We shall want fuel in vast quantities, and soon in quantities still vaster. Far-seeing men who have been watching the world go round during the last decade and a half are persuaded that every man will presently have his motor car. The days of the £800, £1000, £2000 limit are gone. There are thousands of cars of such limits, of course, but they are not the cars that are to give the fashion to mankind or to perplex the poor with envy of the luckier rich. These men of the far-off eye are talking with business sense and practical instances. "I saw," wrote Mr. C. E. Hands, a well-known English motor authority, recently, "the funniest little microbe of a car the other day scurrying along in the Piccadilly traffic. Alongside the omnibuses and the taxis, and the big cars, it looked like a steam pinnace among a fleet of Dreadnoughts." He went on to describe it as a waistcoat pocket edition of a car, with its little bonnet, its dearest little lamps, its tiny horn, and its diminutive mudguards. It contained two full grown people, however, and the public was laughing at the comical appearance of them. A big drayman voiced the general feeling when he cried out: "I'll tell Baby about you playing with his birthday present." Another chipped in patronisingly with: "It'll be quite a car when it grows up." But even here in the crowd there was one of the judicious, and he said: "That will be the king of the road directly." His reason was solid: "It will go anywhere you like in a day, and won't cost more than a hundred pounds." The way of its growth is interesting. Man got tired of his loneliness on the motor cycle. He added the basket for woman, and woman promptly rebelled against yellow overalls and hideous goggles. Thereupon man made the cycle car. Why he called it a cycle car he did not stop to expain. Probably because he was so proud of having turned out something that would enable woman to dispense with goggles and wear a pretty frock. Anyhow, there is the little car, complete in every respect, and there are hundreds of thousands of men who can afford to pay £100 on the instalment system getting ready to pay it. The first was made in 1910 and snapped up, and the snapper quickly showed a derisive world that it was no freak. Then fifty models appeared at Olympia in June 1912. To-day the world talks approvingly of the "bantam motor," and hundreds of firms are building the thing. They are not four-wheeled motor cycles at all. Far from it. They are fitted with all the complications of the motor car of the swaggerest and best-gear boxes, differentials, live axles, water-cooled engines, and the rest. Less fast than a motor cycle with basket, because heavier, they can travel up to fifty miles an hour, they can keep at thirty easily, and—an argument sure to catch the London—they can "go to Brighton and back in a day without any trouble." Here is Mr. Hands' description of one in which a friend took him for a trip: "It had a little hood in case of rain. It cost, all told, £96 10s., and it went like the wind. It was about eight feet long and four feet wide, and it held the two of us comfortably."

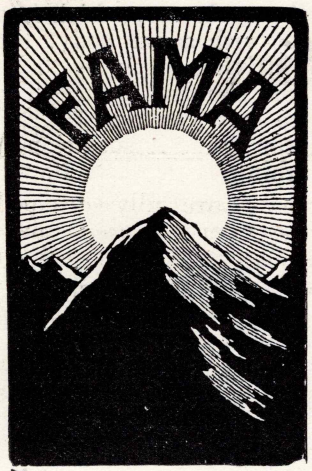
This is different from the cycle car, which is a motor cycle on four wheels, with a car body, the engine air-cooled, and all driving gear by belt; all mechanism, in fact, in the simplest form. The difficulties of definition are not yet over. The latest suggestion of the Motor Trade Association of London is that no car weighing more than 10cwt. can be called a cycle car.

* * * * *

The average man asked to say who is John Brown the famous, would at once declare that the celebrated John Brown was the Abolitionist crank who died to slow music of an attack of hemp on the throat in the year 1863, and his soul has been marching on in quick time ever since somewhere in the vicinity of a "sour apple tree." The average man would only be displaying his ignorance. The John Brown of our day who is famous and deserves to be more so, is the head of the big shipbuilding firm of John Brown and Co., of Clydebank, Glasgow, which the other day turned out into the Clyde river—once a poor bit of a ditch, but now, thanks to much Scottish navigation, which we need not go into detail about—a river fit to float monster liners and battleships of first-class proportions—turned out, we repeat, into the Clyde river the biggest ship now afloat, namely, the "Aquitania." The Germans hide their diminished heads before John Brown, who goes marching on over their prostrate bodies. His vessel is 21 feet longer than the "Imperator," of the Hamburg-Amerika, and 49 feet longer than the "Olympic," sister mammoth of the poor "Titanic." She is 901 feet long—why can they not be satisfied with even figures?—97 feet beam, and 47,000 tons gross, she carries a crew of 1000—we hope they are not all waiters, and scullions, and cooks—and 3250 passengers, who will, we trust, have boat room should the evil day befall, and she can steam 23 knots. At the end of the year she will be running.

* * * * *

Here is a story of the Lusitania which has never been in print. A passenger told us that on the voyage over from Liverpool there was a terrific smash, which made everybody feel queer. The leviathan was plugging away against a hurricane, and it happened that instead of crossing three of the great seas driven before the wind, she rested on two, of which one held up her stern, depressing her nose. Therefore, the third sea came on board with a terrific rush and banging, doing tons of damage. It was just before dinner, and the passenger who tells the story declares that he noticed, after the great smash of this great sea, how the ship did not seem to be able to rise; how, on the contrary, she seemed to be settling down lower and lower, as one who, in a fight, being struck hard, gives way in helpless defeat. For a moment or so he imagined himself and all the gallant ship's company going straight to David Jones his Locker. When the nose turned once more towards the congenial sky, the company went to dinner, but not a single officer or steward, or cabin boy, or stewardess, had heard any noise of any kind. "Just a big wave, perhaps, and that's all, don't yer know." So the dinner went off with much success. Perhaps that is what the people in the "Waratah" felt just before dinner on that dreadful July day, in the Indian Ocean.



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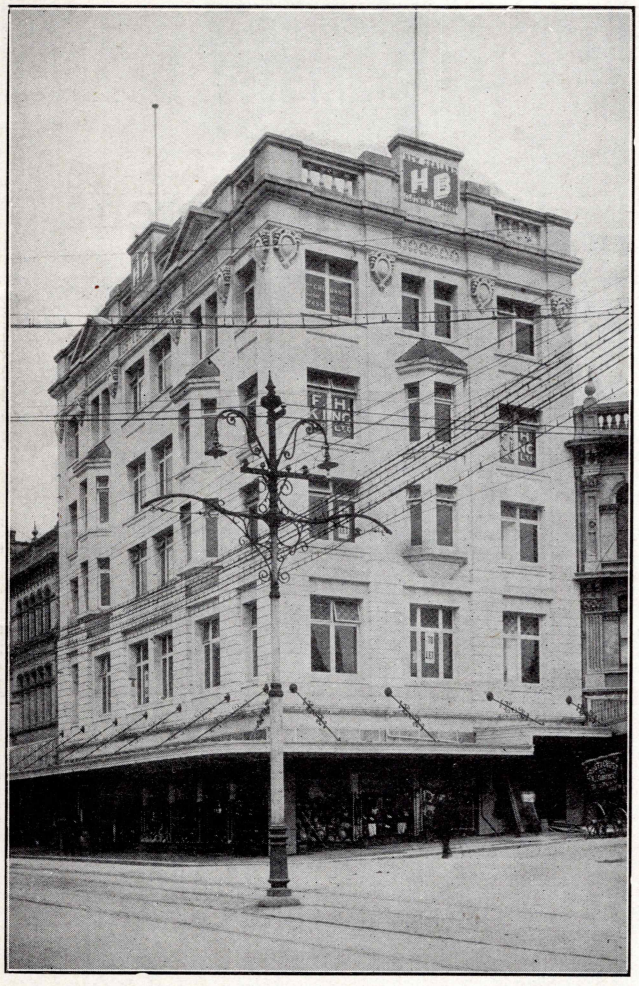
Architecture and Building

New Building for the N.Z. Clothing Factory, Dunedin

The N.Z. Clothing Factory, Messrs. Hallenstein Bros.' new four-storey building, at the corner of the Octagon and Princes Street, Dunedin, is one of the recent stone buildings erected in the Southern City, to plans of Mr. E. W. Walden, Architect.



N.Z. Clothing Factory, Dunedin
Geo. Simpson & Co., Builders E. W. Walden, Architect

The building, which is of "K" Oamaru stone, has frontages of some 70 feet to Princes Street, and 40 feet to the Octagon, and reaches to a height of 80ft. to the parapets. Continuing round both frontages is a cantelever verandah.

The fronts are of walnut, with red granite stall boards and mosaic ingoings.

The ground floor and basements are occupied by the owners, and these apartments are fully equipped with the latest fittings. Passenger and goods electrical lifts run from the basement to the roof, which is of Neuchatel asphalt, and from which a picturesque view of the city may be obtained. The upper three floors are arranged as suites of offices.

The stairway and the lighting of the same are certainly worthy of mention. As a rule where there is a lift, the lighting of the stairway is only a secondary consideration, but in this case it has not been treated as such.

On each floor are fire-hose and fittings, while throughout the whole building there are the electric thermostat alarms.

The building was erected by Messrs. G. Simpson and Co. Lifts and electric fire alarms were supplied by Messrs. Turnbull and Jones; electric lighting and hot water installation by Messrs. A. and T. Burt; the stone and marble work by Messrs. Bingham and Co.

Our Fifteenth Students' Competition

An Elevation for a Town Bank

Won by K. W. Aimer ("Abacus"). Auckland

In response to our advertisement for competitive designs from students for an elevation of a town bank, ten designs were received, viz.: "Teller," by A. L. Lomas, with Mr E. W. Walden, Dunedin; "Black," by G. S. Reid, with E. W. Walden, Dunedin; "Sos," by R. C. Hall, with Mr. F. de J. Clere, F.R.I.B.A., Wellington; "Pip," by L. S. Piper, with Mr. Charlesworth, Wellington; "Brick" and "Nobody," by C. H. Mitchell, with Atkins and Bacon, F. and A.R.I.B.A., Wellington; "L," by G. C. Miller, with Salmond and Vanes, A.R.I.B.A., Dunedin; "Abacus," by Kenneth W. Aimer, with H. C. Grierson, Auckland; "Bruzzie," by Eric Price, with Public Works Dept., Wellington; "Quicksilver," by Royden G. Jackson, with Wade and Wade, Auckland

The judge, Mr. Leslie D. Coombs, A.R.I.B.A., of Dunedin, states that it has given him great pleasure to judge this competition, and that he is agreeably surprised at the high standard of design reached by competitors. His detailed report runs as follows:—

"The design of 'Abacus' is the best, and is the one which I place first. It is a simple and straightforward solution of the problem, without unnecessary features. 'Abacus' has not made the mistake of practically all the other competitors, of constructing ornament, instead of ornamenting construction. He is the only competitor who uses columns of real constructional value, who makes a satisfactory feature of the roof, and who provides a finish at the ends of his cornices by returning them into recessed walls, and so avoids difficulties with

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adjoining property owners. His choice of style is a happy one, the Grecian Doric columns at the entrance loggia being suggestive of strength, and the way he had adapted Doric ornamentation is very satisfactory. The entrance loggia is a splendid feature. It undoubtedly leads to the banking chamber, and so avoids uncertainty as to the main entrance, besides which, it is a most useful shelter. Faults in the design are remarkably few, and then are but minor ones. It is a pity the doors are not a little more out of the common, and also more suggestive of strength. It was unwise to alter the scale of the panes into which the windows are divided. The difference between the first and second floor windows is not pleasing.

"'Nobody' has submitted a good, well-proportioned design, which comes second to that of 'Abacus.' He has, however, made a fatal mistake with his entrances. A bank must have a good entrance. Another point worth noting is that if steps are introduced, they must be broad and imposing, otherwise they are better avoided altogether. 'Nobody's' two side entrances have steps that would be a nuisance, without adding one iota to the dignity of the building. The doors are not at all suggestive of strength. No provision is made against adjoining buildings mutilating the cornices.

"'Bruzzie's' design is remarkably similar to 'Nobody's,' except that he has provided a central bank entrance. His steps, however, are poor, and are lacking in dignity. The treatment of the attic floor is not quite satisfactory, and the design in minor details might have been improved on.

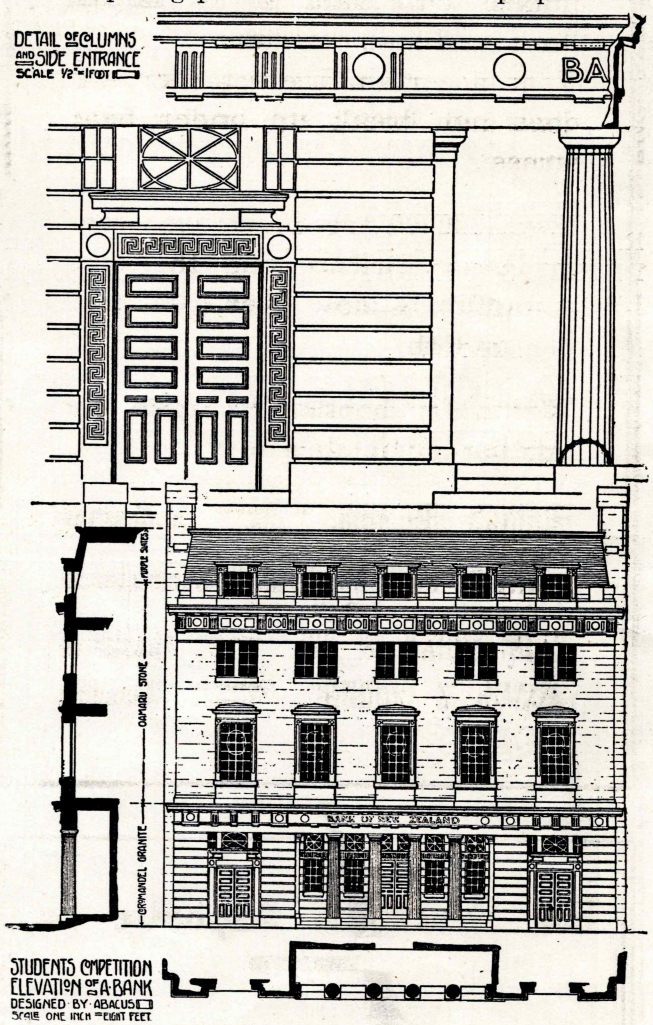
"'Quicksilver' ruined his chances by not adhering to the conditions, and providing plans and sections as required to explain the elevation. His is a most strking design, and in spite of several faults, is worthy of much praise. The main entrance is, perhaps, rather small, but all other proportions are good. It may be said that the design would have been of a higher standard of architecture if the two sturdy Corinthian columns had been doing a little more honest work. The treatment of various architectural features is very pleasing, but then 'Quicksilver' should not be praised for these, as they were designed by John Belcher, R.A., not by 'Quicksilver.' Compare, for instance, the cornice, the architraves to the windows, the ornaments at the side of the main entrance, etc., with similar features and ornament to be found on the new premises of the Royal Society of Medicine, London.

"'Brick' has not designed a bank, by which I mean that his building has not the appearance of a bank. A bank should have a strong, restful appearance, and it is impossible to obtain such an effect with the predominating vertical lines that 'Brick' has designed. My remarks re 'Nobody's' entrance apply to 'Brick.'

"'Pip' has his entrances placed in the right positions, and has nicely balanced his design. His architectural features in detail are not very good. The main entablature is much too small in proportion to the rusticated Ionic columns. Why did he make the second floor windows of greater importance than the first floor ones? The half-inch scale detail is poor. "Pip" has not kept to the conditions, and so it was impossible for him to win the prize, even if his design had been the best. He has shown no section to explain the elevation, and the plan submitted is rather indefinite. He has also overstepped the mark as regards shading.

"'Teller's' design would make a fine, imposing bank. It is, however, bristling with minor faults. Another entrance on the right hand side of the elevation would be advantageous, the Corinthian columns (or pilasters) at the sides evidently have no projection at all, the balusters of the parapet would be hidden by the projection of the cornice, and the detailing of the entablature over the Ionic columns, as shown on the ½in. scale details, has but the one recommendation that it is original.

"'L' has not placed his bank entrance in the most imposing position. His is a well-proportioned



and balanced design, but the elliptical windows and the semi-circular pediments are not very satisfactory.

"'Sos' emphasises the main entrance properly, and his general proportions are good, although taken in detail, his features are rather crude. The use of a central column destroys the effect of balance and rest. The ground floor and basement windows are weakly treated, and would have been better left out.

"'Black' has made the mistake of not balancing his facade. The half-inch scale detail does not bear much resemblance to the eighth scale design of the main entrance doorway."

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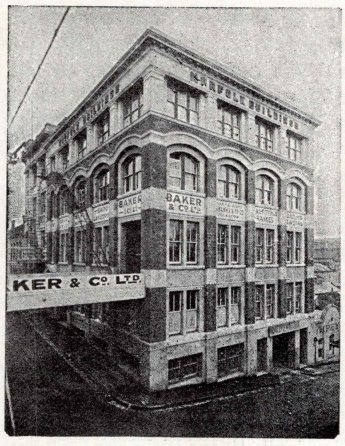

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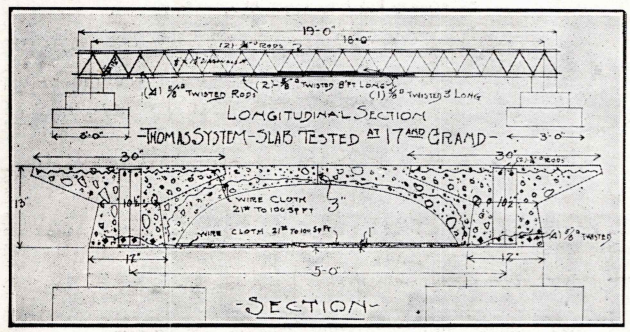
Test of a New Type of Reinforced Concrete Floor Construction

A test of a new type of reinforced floor construction, never before used, but which will be utilised in the five-storey reinforced concrete apartment house being erected at the north-west corner of Seventeenth and Grand Avenues, Los Angeles, was made recently by the Young Construction Company, Union Trust building, which has the contract for the building. This building is 50 x 120 feet, over-all dimensions, and will cost about £25,000 when completed. It was designed by Architects R. B. Young and Son, and engineered by Thomas and Post. The new system of floor construction, which is illustrated here, with photographs of the tests, was designed by Mr. W. M. Thomas, of Thomas and Post, who has patented his invention, and offers its use in building construction on a royalty basis.

While satisfied that the system would work out successfully according to the computation of the engineers, the Young Construction Company desired to make as thorough a test of the system as possible, and hence continued the loading of the specimen



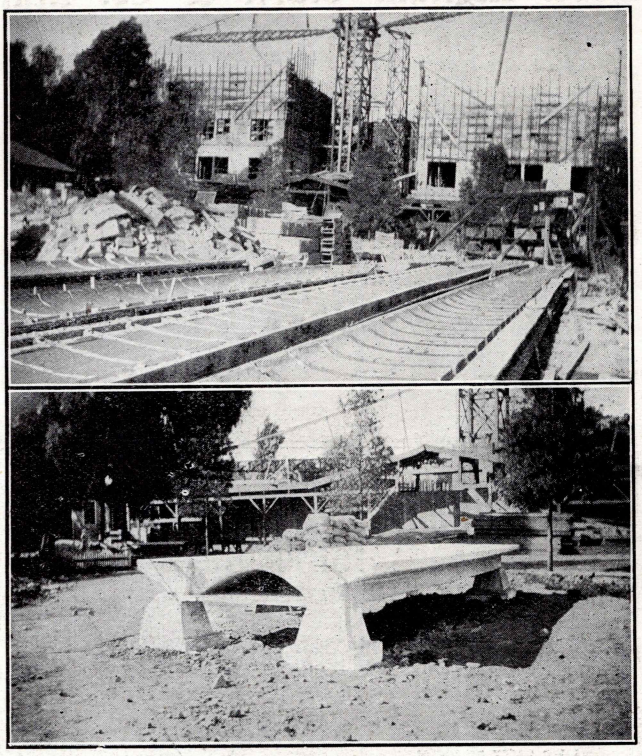
Section of Thomas Patent Slab

floor slab to the breaking point, until it carried 850 pounds to the square foot.

The Los Angeles building ordinances only require for apartment houses a floor construction capable of carrying a live load of 60 pounds to the square foot, with a factor of safety of four. The building department, before allowing this new type of floor to be built, desired that in the test it should carry a load of 300 pounds to the square foot. When loaded at 60 pounds there was a very slight deflection, and at 300 pounds a deflection of 3/32in. was noted, although part of this was due not to real deflection of the slab, but to a settling of the piers on which the test slab was carried. At 300 pounds there was no indication of failure or cracking of the concrete, although at 200 pounds the beam had begun to crack away from the piers. This latter would, however, not occur in regular construction where the girders were continuous.

The failure of the slab occurred at a loading of 1325 pounds to the square foot, the deflection recorded before failure being two and one-half inches, part of which was due to settling of the piers, hence no absolutely dependable record of deflection could be taken.

For the purposes of the test the Young Construction Company built a loose slab 7 by 19 feet, the total area being thus 133 square feet. Of this total area only 114 square feet was used as loading area, on which the total of 151,725 pounds was carried at the time of failure. This loose slab was constructed in accordance with the specifications to be used in the construction of the floors in the buiding as follows: The longitudinal "T" beams that sustain the main load are 12 inches in depth, 12 inches in width at base, and 30 inches in width at top, placed five feet on centres. Spanning between columns the intermediate beams are from 3 to 6 inches in width at base, and 30 inches in width in "T" sections. These "T" beams are so attached at their extremities as to cause the structure to act as one rigid body. It may be remarked that at no time during



1. Floor Slabs being Moulded 2. Slab before Testing

the test, until after tension failure occurred, did the upper side of the beam show any compression failures.

The beam is reinforced with four $\frac{7}{8}$in. square twisted rods in the lower portion, running from end to end of the beam, two $\frac{7}{8}$in. square rods eight feet long in the middle of the beam, and two small rods about three feet long directly in the centre of the beam. The upper or compression portion of the beam is reinforced with two $\frac{3}{4}$in. round rods, and the American Steel and Wire Company's triangular mesh netting in the beams, 21 pounds to each 100 square feet.

The diagonal members, heavier at the ends of the beams than in the middle portion, are rigidly connected to the $\frac{5}{8}$in. rods in the lower members, and the $\frac{3}{4}$in. rods in the upper portion of the beam. The

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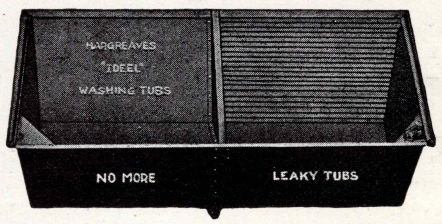

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centre of the beams and had no connection.

The fact that no compression failures were in evidence in the upper side of the beam during the test is taken to show that the diagonal reinforcing that was embedded in the beam held the neutral axis down and effectually prevented its raising and thus allow the beam to fail by compression. The engineers believe the test has definitely established the fact that articulated frame work is far superior to loose rods laid indiscriminately in a reinforced concrete structure by inexperienced men.

It will be noticed that the slab is completed by concrete arch ribs spanning the portion of the floor between the "T" beams. The method by which they are placed on the beams is shown in the drawings. These arch beams are reinforced with American Steel and Wire Company's No. 7 wire, 21 pounds to each 100 square feet. These arches are in direct compression and really need no steel reinforcing.

The arch beams are cast on the ground, then put in place, becoming the forms into which the "T" beam is cast after the reinforcement for the latter is put into position. This method of construction eliminates all the false work otherwise necessary to mold the panels and the sides of the beams. All the work of a false nature consists of bents erected at distances of five or six feet to support the arch ribs while the "T" beams are cast.

The under side of the floor slab, comprising the ceiling of the story below, is made level by a false or non-bearing slab, 1 inch thick, reinforced with American and Steel Wire Company's No. 7 wire, 21 pounds to each 100 square feet. This ceiling slab answers two purposes. It gives a level ceiling without any beams protruding the ceiling, and it also takes up the tension that is developed by the arch beams. The ceiling slab is made in another position than that it finally occupies. They are set on the temporary wood bents, the ceiling slab being provided with a hinge or skew-back forming a seat in which the arch beam can rest and form the molds in which the "T" beam is poured. In originally designing the floor construction of this building, the Kahn system was provided for, but on figuring the Thomas method it was found that considerable saving could be made. Some of the spans run as long as twenty-six feet, and as they could be run even much longer by this system, many posts were dispensed with, so the Thomas system was adopted. The approximate cost of the floors and ceilings was 1/5 per square foot floor area, including beams, reinforcing and expanded metal flat ceiling. This was used on about 80% of the work, and would have been used throughout but for lack of time and space to pour the work. The flat ceiling on the other portion showed an actual saving of 2¼d, per square foot against expanded metal and suspended ceiling.

Mr. Thomas in 1905 had two similar beams tested at St. Louis, Mo., in the United States Geological Survey structural materials laboratory. One beam was 12 x 14 inches, 16 feet 7 inches long, span 16½ feet, weight 3100 pounds. It was tested by placing two equal loads applied at third points of span. The maximum load was 50,600 pounds, deflection at maximum loading 2.30 inches.

Design of Metal Flag Pole Top

Presentation to Officers of H.M.S. New Zealand

We are able to illustrate some fine work designed and modelled by Mr. Joseph Ellis, of the Technical College, Wellington.

The illustrations show two views of a metal top for a flag pole, a number of which were presented to the officers of H.M.S. "New Zealand" by the Auckland Club during their recent stay in Auckland.

The flagpoles are for use on the pinnaces when

Metal Flag Pole Top, Designed and Modelled by Mr. J. Ellis, Wellington

the Commander comes ashore to pay official visits. After landing, the poles are removed from the small boats and carried in procession by the men forming the bodyguard.

There is no doubt that a memento of this unique design will be highly prized by the officers as being a bona fide piece of New Zealand work, carried out in the Dominion. We can well imagne the number of curious questions that will be asked by visitors to the warship when they see these interesting pole tops.

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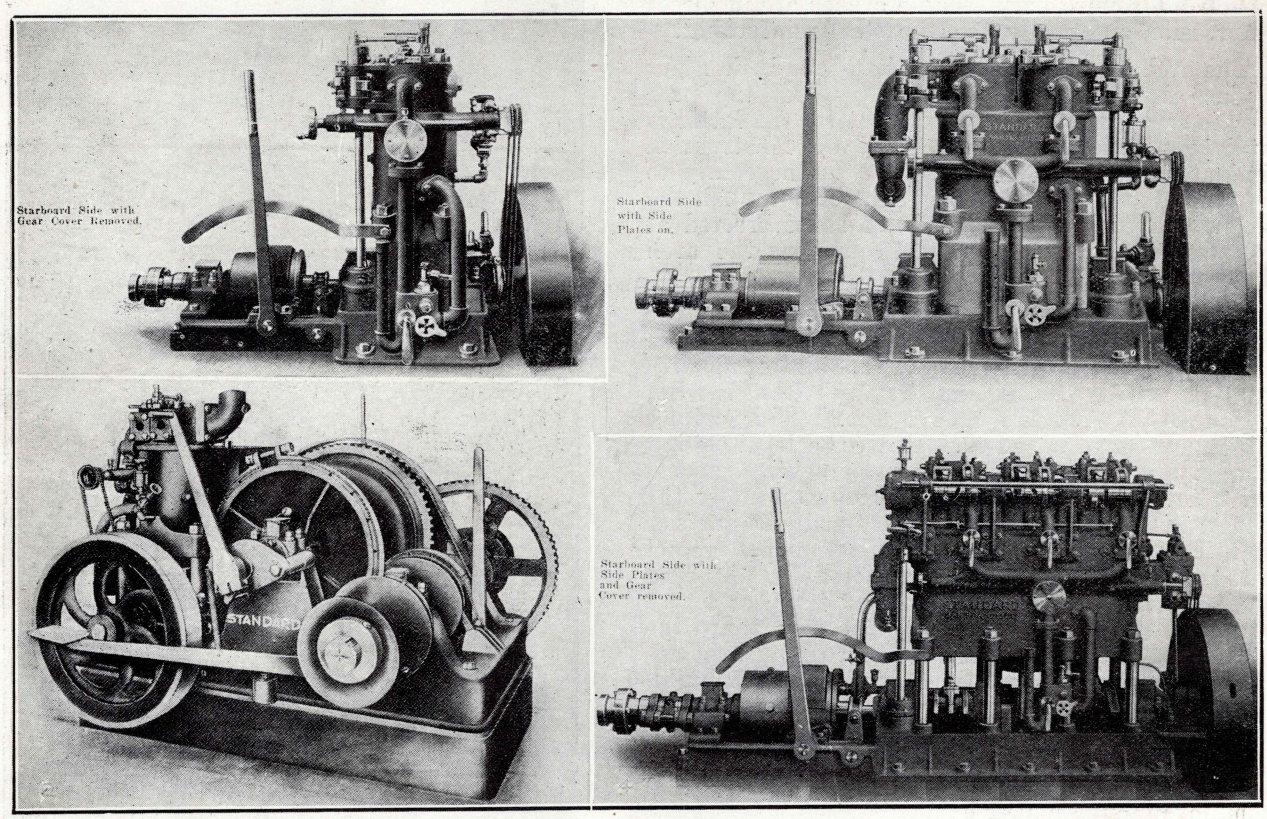
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Power Boating in New Zealand

By Robt. Whitson

The Development of the Motor Boat in New Zealand

Travelling from port to port in New Zealand to-day, and noting, as one must, the large number of motor-driven craft that lie at their moorings, or chug ther impudent way close alongside their bigger sisters, as they steam up the harbours, it is hard to realise that it is only some twenty or twenty-one years ago that the motor exhaust was first heard in New Zealand waters.

It was about the year 1892 or 1893 that the first oil-driven launch was seen in local waters—a year one way or the other is not of vital importance—for the development of the industry to its present day status is not measurable by actual time.

The first outfit seen in the Dominion was a complete launch and engine, imported as a going concern from San Francisco, and it speaks well for the foresight and enterprise of the importer, that he should have been willing to pay the enormous freight charged in those days, to demonstrate a new method of marine propulsion, that even he, in his innermost soul, could not have been quite sure about.

The original unit of the present fleet of motor launches was, appropriately enough, called the "Pioneer," and is still, or was within the last two years, running in Auckland Harbour.

To say that this launch was imported as a "going concern" is, perhaps, open to challenge, but it certainly "went" sometimes, and when it refused duty, it was probably as much the fault of the would-be experts as of the engine itself.

No one out here in those days knew anything whatever about a marine oil engine, but there is no doubt that the engine, mishandled and rowdy as it was, opened the way for the subsequent development of the industry.

Progress was painfully slow at first, as might be expected, for people could not be persuaded that the oil engine was a serious business proposition, and certainly some of the early performances put up, did not enhance the reputation of oil motors for reliability.

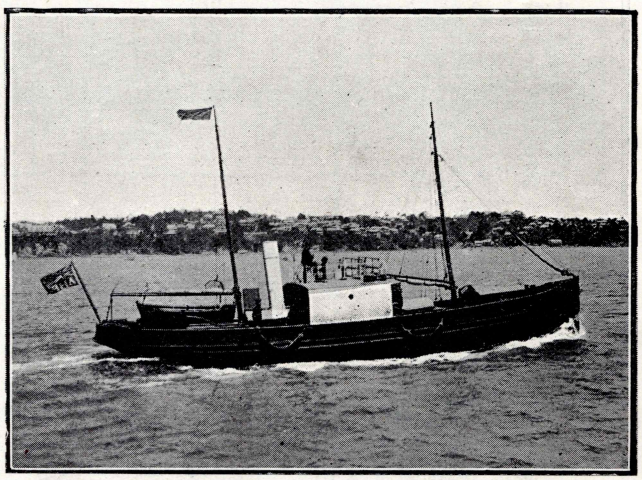
Gradually, however, by repeated demonstrations, and the slowly increasing knowledge of manipulation gained by those in charge, a certain amount of confidence was inspired, and several small engines were imported and put to work.

It was not, however, until an engine of some 20 horse-power was installed in a coastal schooner, as an auxiliary, that the possibilities of the industry were realized, and even then it is safe to say that no commercial man would have ventured to predict a future for the marine oil engine, that would have approximated the development that has taken place.

This auxiliary schooner, sailed by her master, who was both owner and skipper, traded from the North Cape down to Gisborne, and clearly demonstrated the possibility of working out-of-the-way ports, and generally serving the interests of the settlers living along the coast line.

In short, there is no doubt that the performances put up by this craft, did more to inspire confidence from a public point of view, than all the demonstrating that could possibly have been done by pleasure launches.

Merchants were able to ship their goods along the coast, and settlers able to get their wool and produce up to the towns, and naturally, everyone benefitted by the innovation, spoke loudly in favour



Launch "Kuaka," 85 h.p., built for Auckland Harbour Board by Robt. Logan, Senr., in 1894

of the oil engine, so much so, that in a very short time, there were three or four auxiliary schooners plying constantly up and down the coast.

The pleasure craft also at this time were coming steadily to the front, the best known among the early date launches of any size being the Auckland built launch "Queen of Beauty," owned by the late C. A. Harris, and now in the possession of a Southern yachtsman.

Just when public confidence was getting firmly established, the industry received a partial check.

Practically all the engines that matter up to this time, that had been installed, had been 4-cycle low-tension, slow-revolution jobs, comparatively easy to care for, and more or less easily handled.

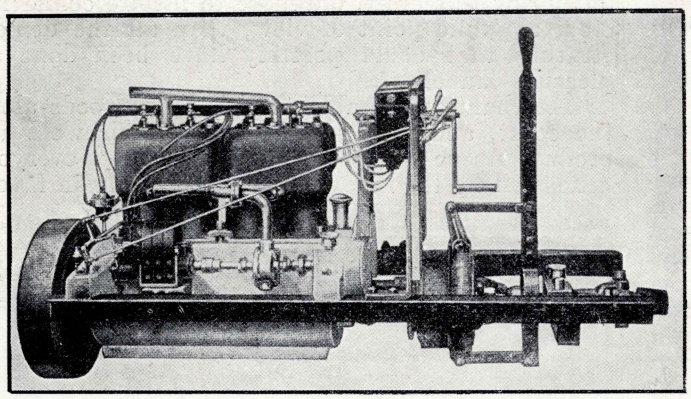
Several business houses, who no doubt began to see money in the industry, now went ahead, and without intimate knowledge of just what they were getting, landed shipments of 2-cycle, high-tension, high-speed engines, doubtless beautiful to look at

Save Money on your Motor !

LET US QUOTE for your next Engine whether 2 or 4 Cycle. It will pay you.

The Famous BRENNAN STANDARD

Complete one man control, rear starter, reverse gear and propeller, pump-forced lubrication, magneto and carburettor controls mounted on dashboard.

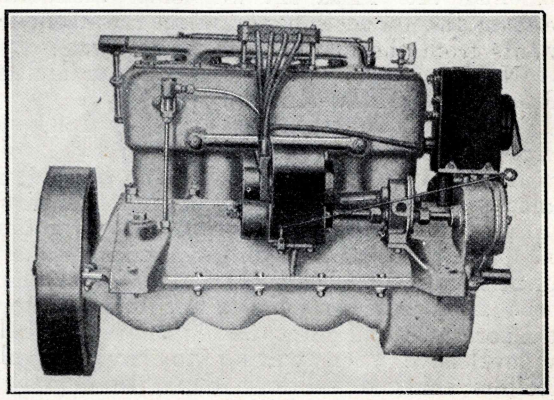


25-28 H.P. Model "B." Marine Motor.

There's a "BRENNAN" for every possible use.

The Engine you have waited for. Look at it—£85 complete

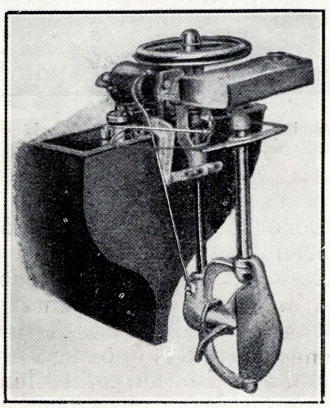
SILENT AND SURE. Develop 16 H.P. at 1,500 r.p.m., pump forced lubrication, everything enclosed, fitted with **Bosch L.W. 4** magneto. Complete with reverse gear and propeller, ready to instal.



4 Cylinder, 4 Cycle, 3½" x 4" 10—12 H.P.

£85. Write for particulars.

Stop Rowing, and buy a "POWERFUL PORTO."



Any Boat a Power Boat in a "jiffy."

Weighs only 50lbs.

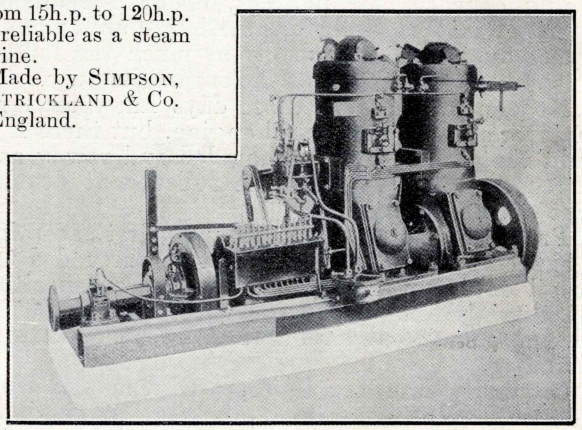
Call or Write for priee and particulars NOW !

Fits any Boat.

Launch Motor Repairs and Overhaul a Speciality. Cylinders Rebored. Estimates Given.

The "SIMPSON-STRICKLAND" Semi-Deisel Engines.

British Made.
From 15h.p. to 120h.p.
As reliable as a steam engine.
Made by SIMPSON, STRICKLAND & Co. England.



Sole Agents. Write for Prices.

ROSS & COMPANY

CUSTOM STREET W., : AUCKLAND.

Brassfounders, Marine & General Engineers & Importers.

in the catalogues from which they were ordered, but heart-breaking propositions when it came to putting them to work.

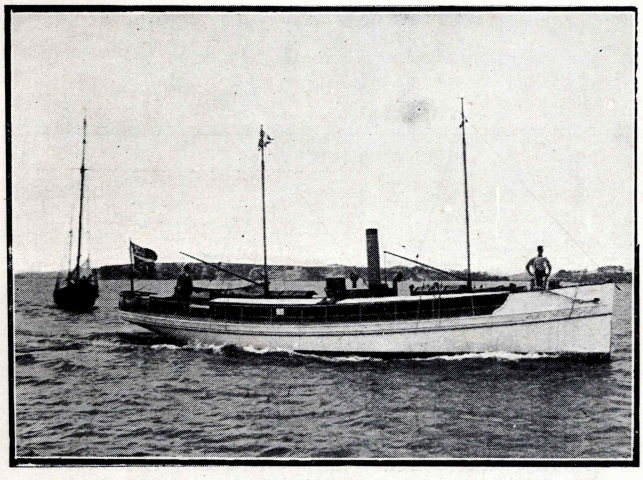
Apart from the high speed and extravagance in fuel of the early types of 2-cycle engine, the high-tension ignition seems to have been the most upsetting factor in these early days.

It must be remembered that the high-tension equipment of that period was not the highly effective and serviceable outfit that is now furnished with even the cheapest motors.

The marine section of the trade certainly owe the development of the high-tension equipment to those who have perfected it along motor car lines, and while each engine at this time brought with it its own ignition equipment, the question of plug, wire and coil renewals, was a most important one, and many an engine lay for weeks and months useless on the owner's hands while awaiting replacements from the manufacturers overseas.

Nowadays, however, when each village of any size has its motor garage, as well as its "village blacksmith," who, by the way, is often a genuine expert in oil engine ailments, the question of spares or repairs, for either high or low-tension jobs, has lost most of its one time seriousness; and there are to-day on the local market, 2-cycle engines in every way as economical and reliable as may be found among the 4-cycle type.

The check given proved naturally to be only a temporary one, for it was impossible to hold back a development that was serving both the pleasure-seekers and the commercial interests of the Dominion.



"Queen of Beauty." The First of the big Launches built in Auckland. Chas. Bailey, Builder

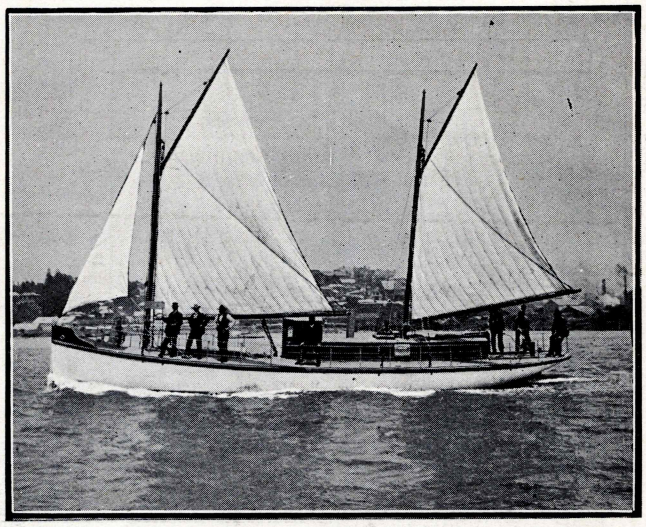
Gradually the original designs were being improved upon by the makers, and the number of engines offered to the public by different agents increased very rapidly.

Benzine at this time was only imported by one firm, who practically had control, not because there was any monopoly existing, but merely because no others cared to take the shipping risks.

In those days steamers refused to carry benzine, and supplies had to be brought from New York by sailing vessels, often "on deck at shipper's risk," which meant that if a tin showed signs of a leak on the voyage the whole case was heaved overboard.

In one instance, only 600 cases were landed out of 1000 shipped, and most of the tins were then only half full, owing to leakage, and had to be emptied into 400gal. tanks as soon as discharged.

Despite irregular shipments, depending on the vagaries of the sailers, and the loss in transit, benzine was even then retailed in Auckland at 1/3 per gallon, and a good profit made.



Auxiliary Trawler "Morangi," built by Logan Bros., Auckland, now used as a Ferry Boat in Dunedin Harbour

As the firm who were importing benzine were also agents for an oil engine, it was perhaps only natural that when the stocks were low, that firm's make of engines were the only ones supplied.

What may be termed the first official recognition of the marine oil engine in New Zealand took place when the contract was signed by the Wellington Harbour Board for a pilot launch fitted with a 50 h.p. engine.

The then engineer and secretary of the Board was a man whose opinion carried great weight throughout New Zealand, and as soon as the wisdom of his policy was realised, orders were placed by both the Timaru and Auckland Harbour Boards for launches.

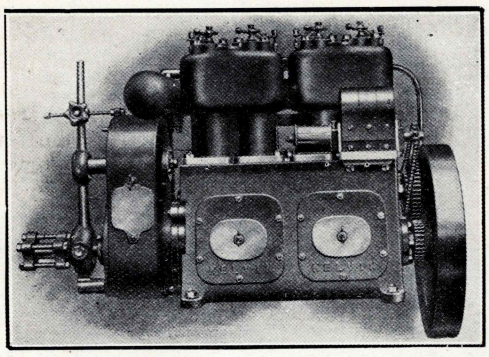
In the auxiliary schooner class, the Government set the seal of approval on the new motive power by building the "Countess of Ranfurly," and installing an 85 h.p. motor, for trade with the Islands.

Apart from these, as it were landmarks, of the progress of the marine motor, development became too rapid and general to admit of a detailed history; but the industry has grown with such a tremendous vigour, that few, excepting those directly connected with boats and boating, know of the important part played by the modern motor launch to-day.

Apart from the pleasure side of motor boating we have schooners working one-time impossible stretches of coast and bar harbours, creamery launches collecting milk from riverside settlers regularly, Government mail services run by motor boats, tourist and passenger launches on the lakes and rivers, and last, but by no means least, the vast fleet of fishing launches that ply round all parts of the coast.

BRITISH MOTORS for BRITISH CRAFT

KELVINS



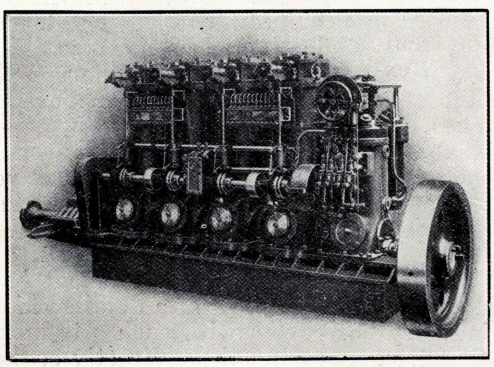
Medium and Heavy Duty.
Benzine and Kerosene.
For Pleasure and Commercial Boats.
From 6 h.p. to 60 h.p.

50 % of the orders received during the last 12 months have been repeats.
Facts that speak for themselves.

Specially designed equipments with Patent Folding Propellers for Sailing Craft. Over 500 installed.

Medium and High Speed Types.
Suitable for Cruisers and Speedy Craft.
Installed in some of the fastest boats in the World.

BEARDMORES



Crude Oil Semi-Diesel.

For Tugs, Hiring Boats, Sailing Vessel Auxiliaries, Coasters, and Commercial Work generally.

Built at the Naval Construction Works, Dalmuir, Scotland, in sizes from 30 b.h.p. to 300 b.h.p.

SOLE N.Z. REPRESENTATIVE; DESCRIPTIVE CATALOGUES ON REQUEST.

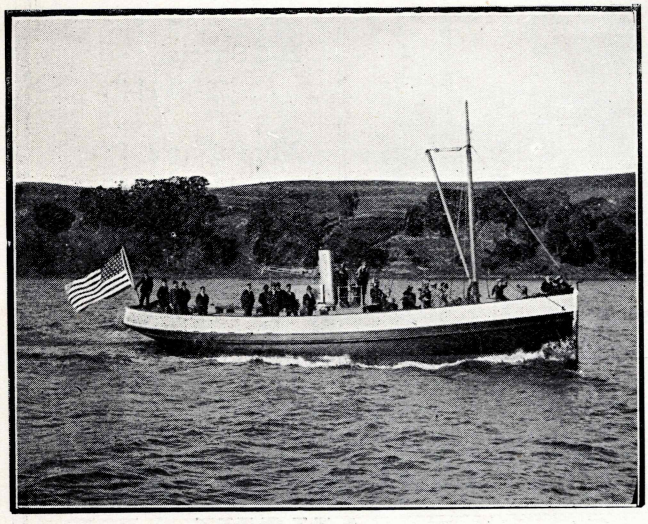
LEO. A. WALSH, Customs St. W., Auckland

Yachtsmen, there is no doubt, looked with disfavour on the advent of the motor launch, and it is impossible to blame them, for there is nothing better than to laze on the deck of a yacht, if it doesn't much matter when one gets to the port of destination.

But that uncertainty of the "time of arrival" has done more to force yachtsmen into the motor boat ranks, than perhaps anything else.
that he shall get back to his work on time.

The average member of a boat crew is anxious to get somewhere definite for his day's trip, or perhaps his week-end cruise, but it is absolutely essential

The troubles of those who blazed the track, or rather staked the channels, of motor boat progress, will never be fully appreciated. But it is good to know that progress has been so rapid, that those who pioneered the craft through the troubled



Oil Launch, "Uta," built about 1900 by Logan Bros., for Wellington Harbour Board

waters, are yet young enough men to witness and take part in the wonderful result of their early efforts.

Propellers

Amateurs without doubt do not give nearly the attention to the propellers fitted to their boats that they should. The propeller is "the man behind the gun" who at least transmits the work.

Most amateurs are usually content to take for granted, that the propeller sent out with the engine by the makers is the best possible under all circumstances. This is not so.

An engine builder seldom builds his own propellers. Some, of course, do, but they are in the minority. The usual method for the engine people is to select a wheel from some propeller specialists that will absorb the power of their engine under ordinary average conditions, and supply that to all comers as a "stock" propeller.

Some few makers specify that if the lines of the hull are supplied when ordering engine, they will select a type of wheel suitable for that hull.

This in itself should be enough to warn buyers that in taking the wheel supplied by the engine-makers, they are more or less taking "pot luck."

True, as we say, this propeller will surely hold the engine down, but it may not be, and probably is not, the most suitable wheel to take with that engine, when the lines of the hull are taken into consideration.

When your launch is not giving you the results you expected, you will probably suspect many things, but once you are assured of the fact that the engine is giving its power, then make your propeller the next object of suspicion, but first be sure that your shaft line is turning absolutely free.

In this last connection we would mention that with many outfits, especially those with flat underbodies aft, so popular nowadays, although the shaft line before launching will turn perfectly freely, yet when the launch takes the water, the shaft will bind badly. This is because in nearly every instance, with this type of launch, the underbody takes quite a spring when waterbound.

The correct practice in installing a motor, is to launch the boat with the coupling between engine and shaft free, so that, if there is any spring on launching it will show immediately, and may be rectified by liners under engine until perfect.

We have known a great many instances where as much as a 20 per cent. improvement has been made by a change of propeller wheels, and doubtless there are hundreds of launches running in New Zealand that are capable of great betterment.

Also a change from a three-blade to a two-blade wheel will sometimes do a great deal.

If you are struck by any doubts on this subject, go to the nearest practical man within reach and lay your case before him, but make sure that he has already affected some genuine cures (not lucky ones) before placing a great deal of faith in his opinion.

And if you do decide on a change of wheel, have the experimental one, if of any size, cast in iron, as this will answer all requirements for a trial, and is a very much smaller loss to you if it proves useless, and has to be scrapped.

If you can get no local help, let us try. Send the following particulars: Water line length, and beam of hull; draft (extreme) on water line; fine or full entrance; present speed of boat (this must be accurate in miles); power of engine and present revolution per minute; diameter and pitch of present propeller; width of blade at widest part; if propeller is two or three-bladed. This propeller question is a vital one, for you may be wasting a great deal of power and energy.

Right and Left Hand Propellers

Many amateur, and indeed professional engineers, are unable to tell with accuracy a right-handed propeller from a left, and this simple matter often results in expensive errors, when spare or new propellers are ordered by mail. A simple rule to follow is this: In facing the flywheel looking aft, if the top of the flywheel turns from the right to the left, the engine requires a right-hand wheel. If top of flywheel turns from the left to the right, a left hand propeller is wanted. In standing aft of stern of boat, facing the bow, a right hand wheel screws into the water turning to the right, and a left hand wheel turning to the left. both taking the water on the back or flat side of the blades.

Van Blerck Marine Motors

HIGH SPEED AND MEDIUM DUTY

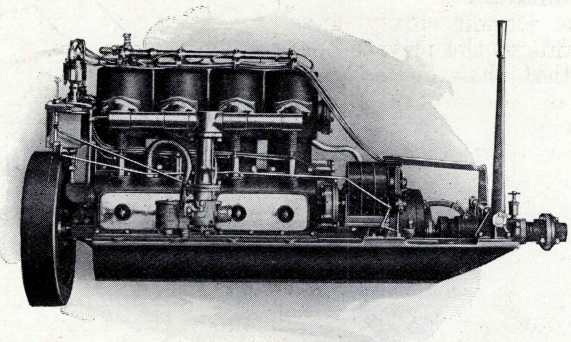
B-2.....12-15 H.P.

B-4.....28-40 H.P.

B-4 Special .....38-47 H.P.

Fastest Official Mile

Fullest Details



Type B-4. 28-40 H.P.

B-6.....35-48 H.P.

B-6 Special .....52-64 H.P.

Also 8 and 12 cylinder to 250 H.P. on request

Sole N.Z. Representative:

FRED. H. HADFIELD, M.I.E.E.

ENGINEER 68 Hobson Street AUCKLAND

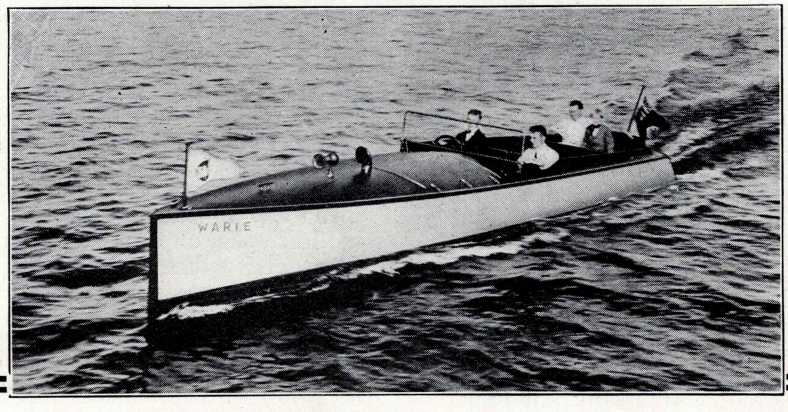
ALL Launch Accessories stocked. Repairs to all motors. Heinze Coils. Accumulators of all capacities. Charging of same by most complete installation. Magnetos and lighting dynamos specially made in America to my specifications. Actual maker of switchboards and instruments for launch and car lighting, and dental work. The lighting of launches is made a feature, and artistically carried out. Models for Inventors and Patentees designed and made. Drawings for same. Repairs of all scientific instruments, and improvements designed and carried out.

ELECTRIC MOTORS of highest grade only, and all electrical accessories stocked and erected. Lamps of all voltages and candle powers. Specialist in magneto and speedometer repairs. Tool and mild steel in short lengths. Spring steel. Camera hinges and brass work. Pinion-wires, racks, cut wheels, fine sprocket chain. Round leather belting. Nernst lamps for projection purposes. Reducing valves and high pressure guages for gas cylinders.

Wheel-Cutting from the finest Instrument Wheels to any size

Dry Batteries

Brimstone Sulphuric Acid for Accumulators



Private House Electric Lighting by automatic plant

No Trouble

The Boat Harbours of New Zealand

What is being done for the Small Craft.

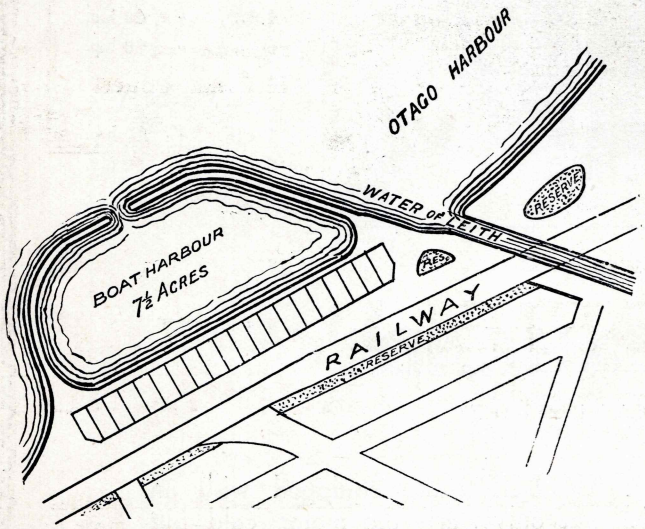
The inadequate protection given by the various Harbour Boards in the main centres has long been a sore point with the owners of pleasure craft.

And it is with a view to assisting the boating men, and also for their information, that this description of such protection as already exists, and is planned in the near future, is written.

That the want of such protection has been a crying one, has been known to boating men for years, but it would seem that it is only lately that the various authorities have admitted it.

And the Harbour Boards should surely have granted something long 'ere this to the private boat owners, but it would seem that they have looked upon pleasure boats more as an actual encumbrance rather than as an asset.

That these craft are an asset to any port is easily established, for although they may not have been



Plan of Proposed Dunedin Boat Harbour

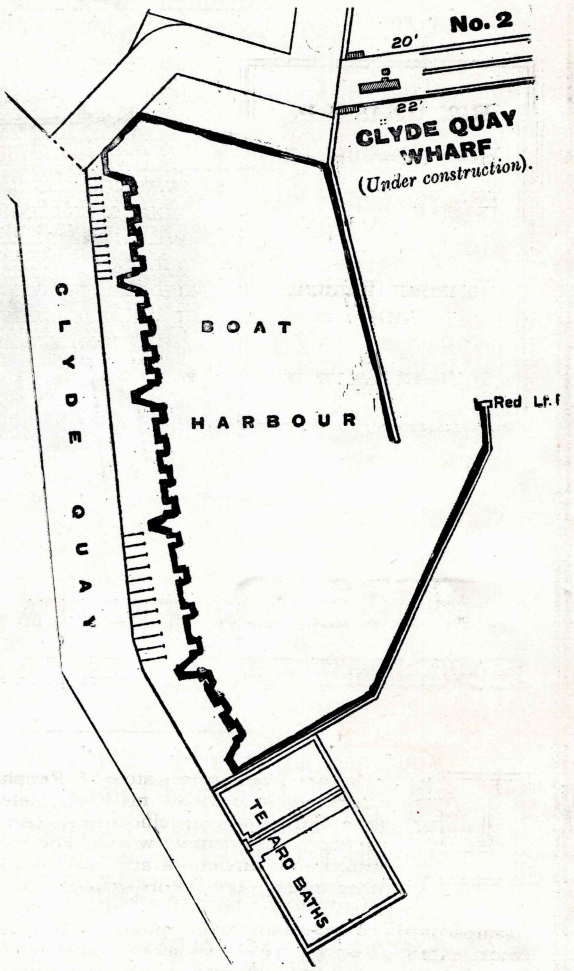
actual payers of dues, they have been the main support of many boatbuilders, who, but for this class of work, would never have been in the business, and as all, or nearly all, of these builders have their sheds and slips on Harbour Board properties, it is obvious that indirectly at least the boat owner has been contributing to the up-keep of the ports.

Wellington has certainly taken the lead in the matter, for it has already a boat harbour capable of caring for the pleasure craft of the port.

This boat harbour is particularly well arranged. The entrance is an easy one, and yet gives ample protection in all weathers, for the lip of the entrance overlaps for a considerable distance, ensuring that there can never be a direct blow or any severe sea, directly on to the craft moored there. Round the sides is ample room for hauling up any of the craft, and the sheds are so arranged that boatmen have a minimum of trouble in stowing their gear.

To see this boat harbour at the present time, with practically every mooring occupied, all boats in orderly lines, moored fore and aft, and others pulled up on the space reserved for them, is to realise what may and should be done for the owners of pleasure craft.

Dunedin boat harbour is not yet completed, though the work has been started. As will be seen from the plan, it has everything to recommend it, and the Otago yachtsmen have expressed their hearty approval of the scheme. In the harbour will be provided moorings for the launches and yachts. The general particulars are as follows:—The main dimensions are: Length, 850 feet; width, 400 feet:



Plan of Wellington Boat Harbour

and the surrounding walls total 2500 feet in length. The entrance width is 50 feet, which is wide enough to enable the Board's dredge to enter the harbour for the purpose of dredging, as occasion requires The walls are of bluestone, to be pitched on each face. These walls can be utilized for boat landings as may be required. In the vicinity of the boat harbour twenty sections, each having a width of 50ft. and a depth of 100ft., will be available for leasing, so that boat owners can slip their boats in all weathers. It is expected to complete the harbour within two years.

Close alongside the boat harbour the Leith Canal discharges into the Otago harbour, and it is the intention to provide boat landings along the walls

Loew Victor Motors

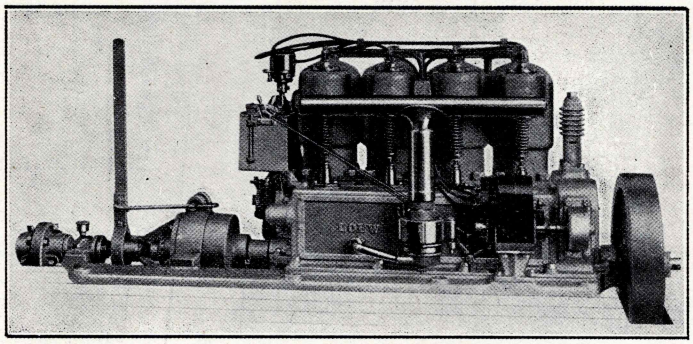
USED BY MEN WHO KNOW

YOU are going to notice right through this season that every time some motorboating expert writes of his exceptional performance, or his future plans, his power plant is always the LOEW-VICTOR.

MEDIUM DUTY

1 cyl.	-	6 h.p.
2 „	-	12 h.p.
3 „	-	18 h.p.
4 „	-	25 h.p.
6 „	-	36 h.p.

Bosch Magneto, Air Compressor, Mechanical Oil Feed, Planchard Carburetor and Reversing Gear, usual equipment.



Model 13—25 h.p.

SPEED

4 cyl.	-	30 h.p.
4 „	-	40 h.p.
6 „	-	60 h.p.

HEAVY DUTY

4 cyl.	-	40 h.p.
6 „	-	60 h.p.

A YEAR AHEAD!

STEP INTO YOUR BOAT, PRESS THE BUTTON, AND YOU ARE OFF : : :

Four and six cylinder LOEW VICTOR MOTORS are equipped with an electric self-starter and lighting outfit, which not only starts the motor cold but furnishes ample and undiminished current for running lights, cabin lights, and searchlight. Does away with complicated lighting plants in present use. Operates automatically without attention and always works.

START RIGHT! RUN RIGHT! PRICE RIGHT!

And within the means of every boat owner.

DON'T HESITATE, WRITE FOR CATALOGUE AT ONCE SOLE AGENT FOR NEW ZEALAND

CHARLES BAILEY, Junr.

Ship, Yacht and Launch Builder,

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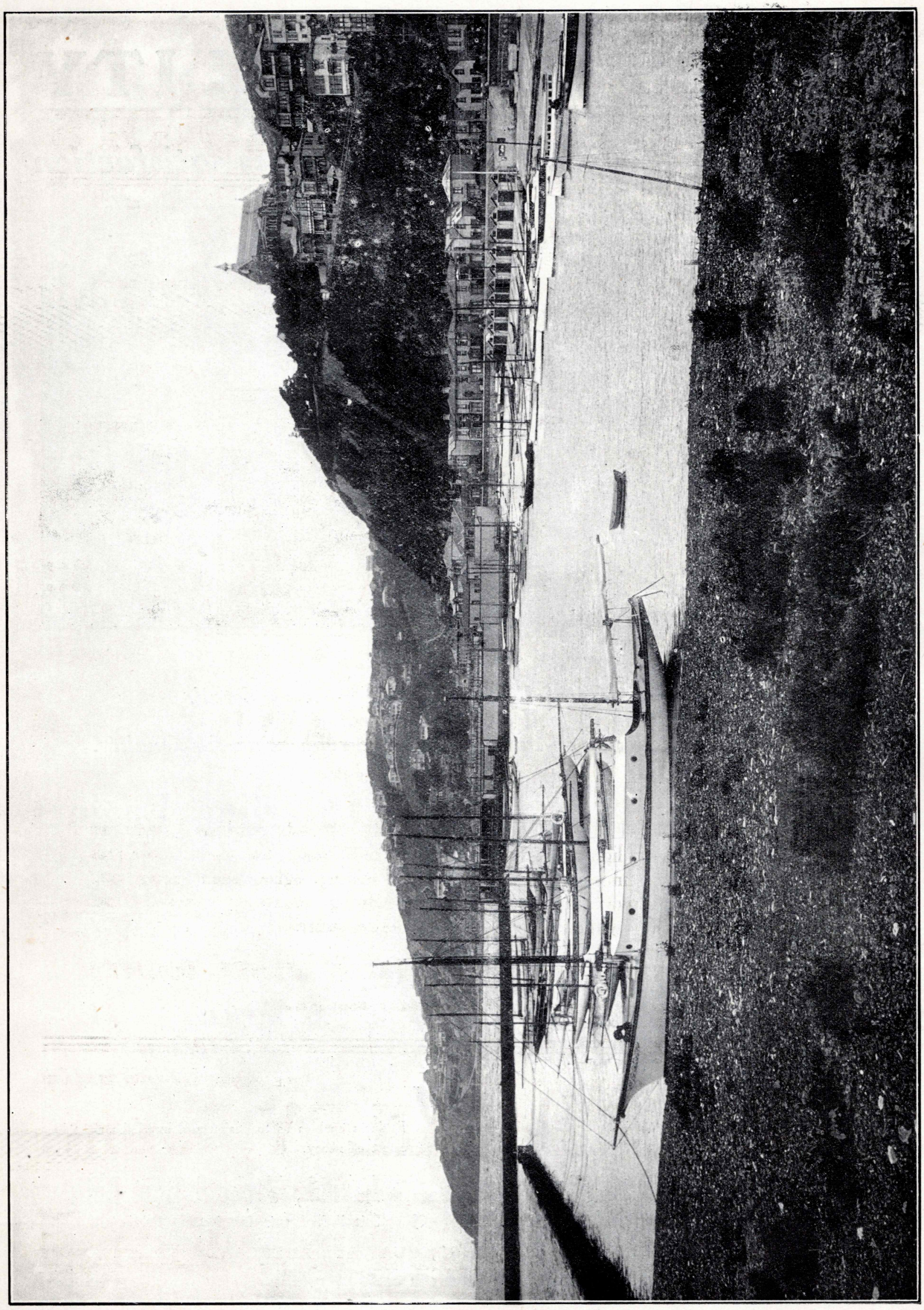
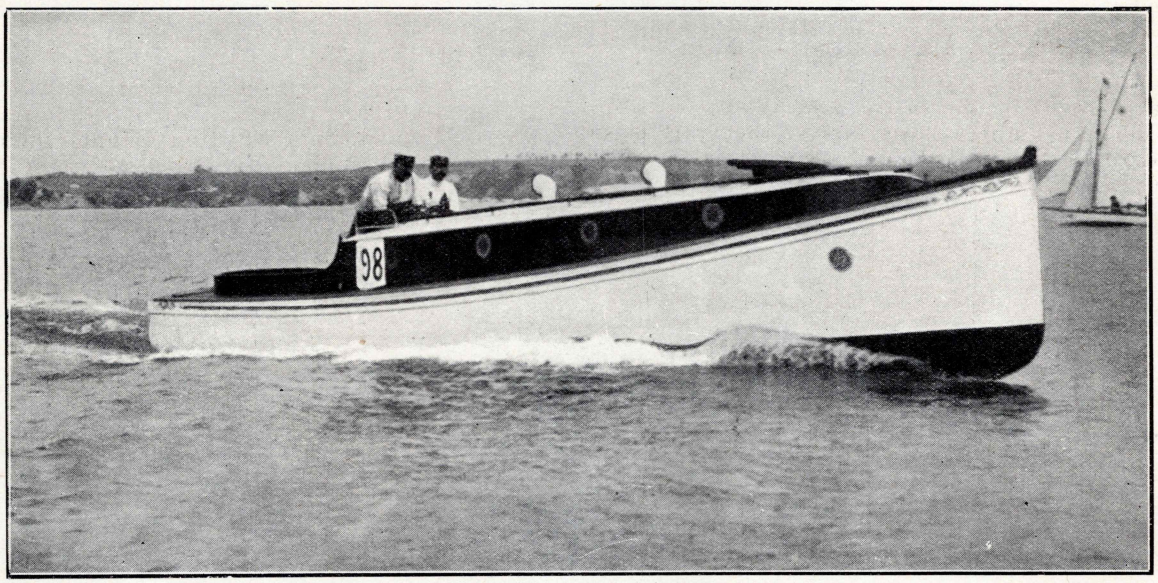


Wellington Boat Harbour

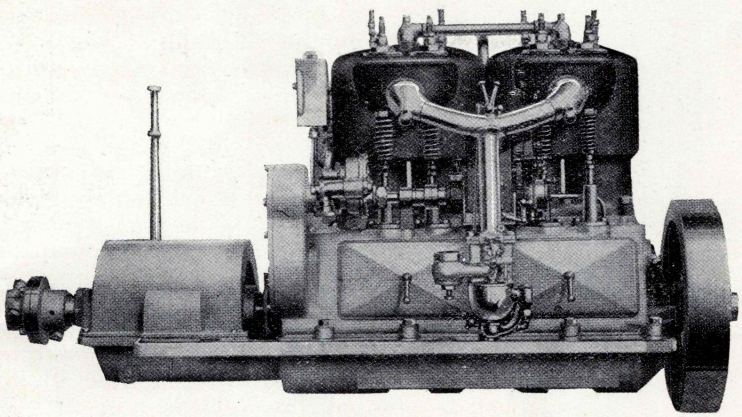
BOATS OF QUALITY

A "BAILEY & LOWE" Outfit ensures satisfaction



"PRINCESS" 35ft. by 7ft. 10ins. by 3ft. 6ins. Speed 12½ miles per hour.

Every Hull we sell is faithfully constructed in every detail.
Every Sterling Engine we sell develops its rated h.p.
Every Outfit turned out by us increases our reputation for Quality.



18-25 h.p. Sterling Oil Engine Model B (the power plant installed in "Princess")

Sterling Engines

Are built in four Models: All four-cycle.
Power from 8 h.p. to 240 h.p.

No matter what your special requirements may be, you will find a "Sterling" to suit that requirement.

"STERLING" Features:

RELIABILITY
SIMPLICITY
DURABILITY

Let us know your needs. Our long experience in the Motor Boat Business enables us to design and build the right boats and equip them with the type and power of Engine that will give the greatest efficiency.

Bailey & Lowe, Launch, Yacht & Boat Builders

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Offices: 42 FERRY BUILDINGS, QUAY ST., AUCKLAND
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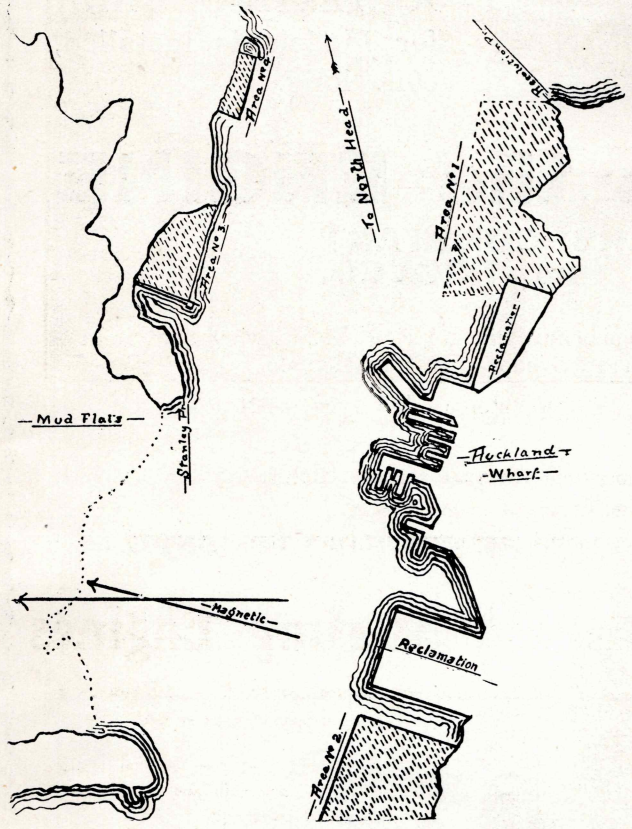
of this canal, so that boats of light draught can discharge passengers to suit their convenience. The estimated cost of the undertaking is £4,000.

Auckland, the city which from point of number of craft, should easily have been the first to undertake a scheme of this nature, has only just decided on what shall be done.

This city is establishing what are called "protected areas," and from what one can pick up from the yachtsmen they are not altogether pleased with the scheme.

The principle is that these areas, numbering four, marked off on chart, are to be sacred to the pleasure craft. Specified moorings have to be laid, and have to be approved by the Board, and will be numbered, and once tied up to these buoys, the craft is supposed to be "protected." Just what is to protect



Plan of Auckland Boat Areas

the craft from anything, nobody seems to know. Seeing there is no sea wall round any one of the areas, we do not quite see what is to happen supposing a large raft of logs breaks adrift, as has often happened in the harbour. Certainly, we do not suppose that any trading vessel will wilfully attempt a passage through these areas, but if the skipper chooses to try, the Harbour Board by-laws are not likely to stop him. No! looking at the matter "full and bye," we cannot see that the Auckland Harbour Board is giving the "protection" to the largest fleet in the Dominion that they deserve and are entitled to. Certainly they have herded the craft together into four areas, and possibly this is the best that they can do, but if so, it is a particularly poor best.

Silencer for Motor Engines

A very effective form of silencer for motor boats has been developed along the lines of the rifle silencer, and put on the market. The silencer, which is meeting the approval of all who have seen it in operation, secures a practically noiseless exhaust, without back pressure and with the end of the exhaust entirely above the water. The silencing of the exhaust is accomplished by permitting the exhaust gases to whirl within three chambers until their energy has been expended. The device consists of a shell in which are contained three chambers, into the central one of which is led the exhaust gases from the engine. As the gases pass through these chambers in a whirling manner their velocity is decreased sufficiently to allow them to escape through the exhaust vent into the open air with practically no noise. The silencer may be used either with or without cooling water and there are no small holes or passages in the device to become clogged with grease or dirt.

Lubrication

The progress which has been made in improving the motor boat, both in its mechanical equipment and in its general utility and comfort, has forever removed the element of grave uncertainty which formerly attended venturing forth under gasoline power. The days of stopped motors and helpless drifting are gone, and we have in place of a snorting, terror-inspiring, floating juggernaut, a wieldy, reliable, seaworthy production, quite worthy of the name of auto-boat.

In nine cases out of ten, when something goes wrong with the motor boat to-day, it is traceable to carelessness, indifference, or unmechanical tampering. The marine motor is no longer a crude hollow casting with an explosion chamber and a crankpit. Ignition is no longer a simple process of closing a circuit with a trip hammer. Carburretion is no longer a scheme of sucking in air saturated with gasoline. Lubrication is no longer a process of burning up oil or cramming in grease. These details have been refined by the manufacturers in producing economically operated motors of more power and greater reliability. The man who in the past has handled "one lung kickers" must abolish his crude methods in operating the modern boat.

Therefore, as nine out of ten amateurs who possess a motor boat are not trained engineers, they must necessarily be guided by a simple knowledge of the most essential features required to prevent as much as possible, breakdowns.

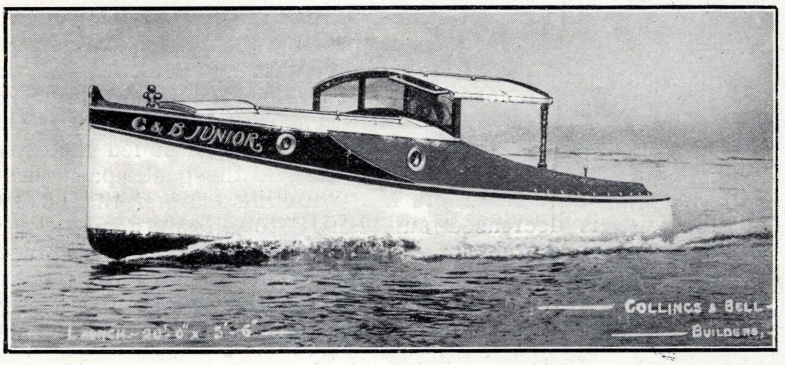
Proper lubrication is the main feature, and after having satisfied yourself that the lubricants you use are the best to be had, you will find that troubles will cease.

A highly refined cylinder lubricant is essential, one that will not carbonise in the cylinder head.

The highest grade of non-fluid oils should be used to safeguard your gears, and bearings.

The New York and New Jersey Lubricant Company seems to have "filled the bill" with its famous cylinder lubricant, "MoToRoL," and its non-fluid oils.

COLLINGS & BELL



DESIGN, FINISH and MATERIAL of our LAUNCHES are the BEST, and are right up to date.

A TESTING TANK for Models is installed, 60ft. long.

The DOMAN is the ENGINE

That SEVEN YEARS CONSTANT SERVICE in N.Z. has PROVED.

The first Engines imported into N.Z. have the same pistons, cylinders, rings, &c., as when new, and are driving the Launches as fast as ever. THIS has been the experience of N.Z. amateurs.

A DOMAN ENGINE won RUDDER CUP (124 mile non-stop run). A DOMAN ENGINE won the 50 run AUCKLAND REGATTA, 1908.

14-Knot Launch "RONAKI," designed, built and engined by us for the AUCKLAND HARBOUR BOARD, is fitted with a 55 h.p. DOMAN ENGINE.

38ft. Launch "WAHAROA" built by us for C. J. PARR, Esq., MAYOR OF AUCKLAND, is fitted with an 18 h.p. HEAVY DUTY DOMAN ENGINE.

KEROSENE.—A special type of DOMAN ENGINE is being built to run on kerosene. This is not a Doman Benzine Engine converted, but an out and out KEROSENE ENGINE, built to burn that fuel.

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We are Sole Agents for K.W. Goods.

CAILLE PERFECTION TWO-CYCLE ENGINES.

Hundreds in use in N.Z. from 2 h.p. Row Boat Motor up to 4-cylinder 30 h.p.

We are exhibiting at the AUCKLAND EXHIBITION where you can see these and other goods that will interest you.

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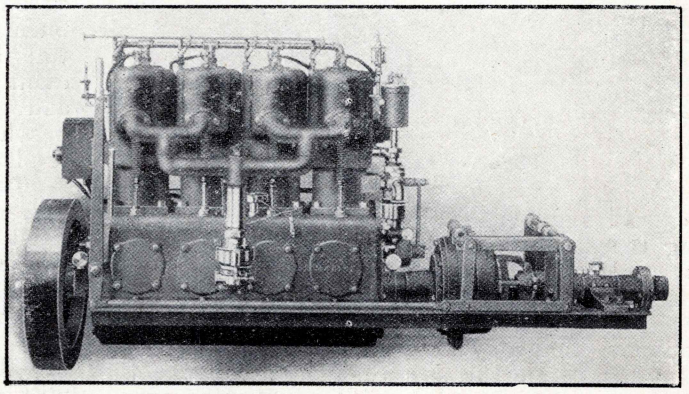


4 Cylinder Doman Engine

COLLINGS & BELL LAUNCH BUILDERS & ENGINEERS, St. Mary's Road, PONSONBY, AUCKLAND.

Take Herne Bay Car to Three Lamps. **'PHONE 2243.**

The Choice of a Hull and Engine

How to go about it

In reading the following remarks on the choice of a motor boat two points must be borne in mind.

First, the matter will probably be of no value, and little interest, to those who are already possessed of motor boats; and, secondly, it is impossible to give definite advice for a particular set of circumstances, where those circumstances are not known.

The advice that may be offered in this limited space is intended for the prospective owner of an outfit, who may be at present in the midst of a bewildering uncertainly as to the type of boat and engine to be selected. It is not intended for those who have already been through, and have probably paid for, their first experience.

So keen is competition nowadays, that it is only necessary for word to spread among the boatbuilders and engine agents, that there is a possibility of a sale, for the intending buyer to be overwhelmed with all sorts of suitable and unsuitable designs of craft, and every type of engine, and, with every fresh design and catalogue comes added uncertainty to the buyer.

Every boating friend will have a word of advice on the future outfit, but it must be remembered that each individual friend is only advising from his own limited experience, often gained in only one type of boat and engine, and although such advice is probably really well meant, the circumstances that have led to his conclusions may be entirely different from those under which the new outfit will have to operate. In sorting out the items of advice proffered, it must be borne in mind, that every suggestion made that is worthy of serious consideration, should have some solid reason behind it. A direct question for this reason, and definite effect of such suggestion, if adopted, will in many cases eliminate confusing discussion by establishing the fact that the item advised is merely the outcome of some individual fad.

Another general rule to hold fast to in the final selection is to be especially suspicious of the boatbuilder or engine agent, who endeavours to enhance the value of his goods by decrying those of his rivals. There are many sinners in this respect among both builders and agents, and if they would only realise it, it is not only bad salesmanship, but is in itself a confession of weakness, which, to a thinking mind, conveys a reflection on the goods offered. If the build of a boat, or the design of an engine, is so poor that its good points can only be brought into prominence by comparison with something worse, then it is not the outfit for a beginner.

The builder or agent, who is capable of delivering the right goods, is content to point to performances put up by jobs he has already turned out, for after all a really successful outfit is a better guarantee of satisfaction to a possible buyer than anything else that a salesman can offer him.

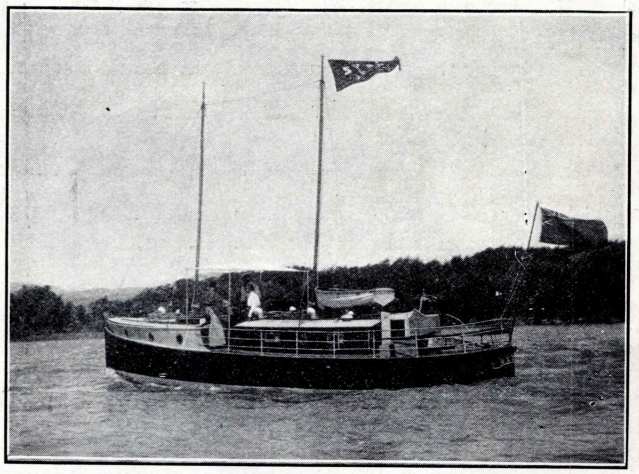
When one has finally decided to join the fleet as an owner, the points to be considered are, of course, many, and in this article it is impossible to touch on detail. It will, perhaps, be most helpful if an endeavour be made to set out the major points of the problem in the order in which they should be tackled, with a view to having some approximate idea of the outfit that will meet the particular conditions of the case, before attempting to get estimates from the builders and agents.

The three main points are: 1, cost; 2, type of boat; and, 3, style of engine.

The matter of cost is, of course, the controlling factor in limiting the size of hull and power of engine, although there is quite a variation of size possible, for the expenditure of a fixed sum of money, according to the finish required in the hull fittings, and the speed required in the finished boat.

Cost is a point that must be definitely fixed before anything is gone ahead with, and it will be found a really sound policy in ordering to keep the total estimate at something less than the funds available. It is an extremely rare event, to find a boat and engine turned over to the owner at exactly the price figured on when the job is started.

This is probably no fault of the builder or the motor agent, for good firms will complete the work the details as they appeared in the original plans they specify, at the price they put in, even if it means a loss to them, but the owner, watching the hull building day by day, and seeing the actual installation of the engine, is seldom satisfied to leave and specification.



A Model Cruiser

Alterations mean added cost, and if the whole of the funds available have been absorbed by the original estimate, it either means that some possible improvement has to be left out, or else that the item of "extras" will appear in the account on settling day.

A good working margin to keep in hand when signing up is about 10 per cent. of total cost for outfits up to, say, £400, and when the cost exceeds this sum (as alterations would probably be on a more extensive scale), a provision of, say, 15 per cent. should be made.

In any case, if the margin is not required for actual alterations and extras, it will come in extremely handy for the purchase of cruising equipment, moorings, etc.

In all cases, details must be clearly set out in your specifications, of both boat and engine, showing just what you are going to get for your money.

Think This Out!

The value of any Engine is the horse power and the working cost of obtaining same. This horse power can only be obtained by the cylinder.

$$\text{Formula} = \frac{\text{Bore}^2 \times \text{Stroke} \times \text{Rev.}}{15{,}000} = \text{B.H.P.}$$

Each horse power costs every agent or maker say £15, therefore it tempts them to overestimate horse power when selling. This explains the use of above formula.

Two Engines, each costing £100, cost landed here—American, £130; English, £100; and the American must be made in half the time because the wages, etc., there are double.

Can you get something for nothing?

Weight is not always strength, it may represent bad design. Now, we are not buying and selling English Engines for patriotic reasons, but because as Engineers we know

The CAPEL
IS THE BEST VALUE OBTAINABLE

and we invite you to call and discuss the various points of Engines, or write us for further particulars.

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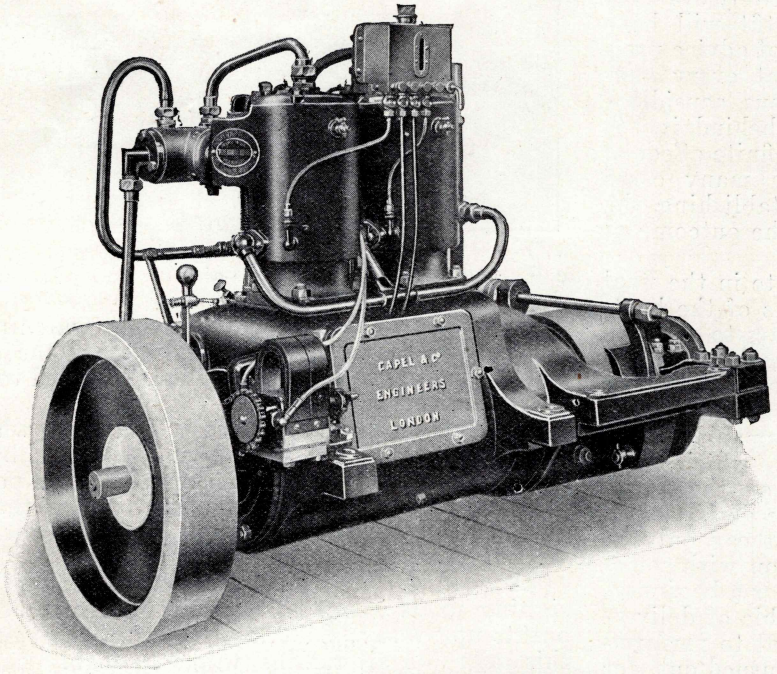

LAUNCHES, OIL ENGINES, SUCTION GAS, TOWN GAS, STEAM, CLARK'S LAUNCH PAINT, REFRIGERATING, FARM MACHINERY, SAWMILLING MACHINERY, FLAXMILL MACHINERY Etc., Etc.

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Winstone Ltd. (4)	Geo. Nicol (2)
J. T. Julian	Harrison & Sons
R. B. Martin & Co.	Hatrick & Co. (2)
Richards & Co. (2)	Inter-Island S.S. Coy.
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1, 2, 3 or 4 CYLINDERS
(Benzine or Kerosene)

An American-type BRITISH Engine, having the best points of both, being perfectly balanced, large bore and stroke, the revolutions varying from 400 to 800 per minute. Plunger Pump, Bosch Magneto Ignition, Splash and Sight Feed Lubrication, Throttle Governor on Induction Pipe, Heavy Reverse Gears, Patent Poland Vapourisers heated with exhaust.

Write for Illustrated, Priced, General Machinery Catalogue (New and Secondhand Gear), FREE.

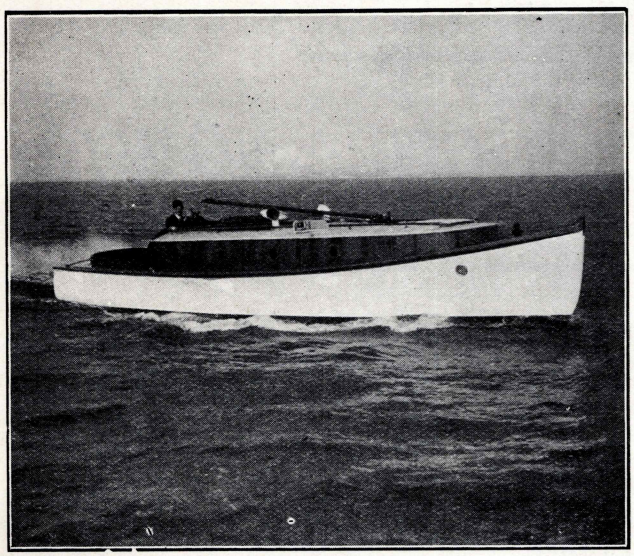
28 Launch 12 h.p. Engine complete, £245. **30-footer 16 h.p. Engine, £275**

Don't let this slide on account of the trouble you are giving the sellers; that is part of their business, and any firm of repute will cheerfully sign up to do certain work for a definite price. This will save a great deal of argument, and is more satisfactory to both buyer and seller.

The next item for decision is the type of boat, and although the range of selection is large, still it will be found, on thinking the matter over carefully, that there is one type that probably stands out from the others as most suitable for all your conditions.

There are so many launches of all types to be seen nowadays that it is generally possible to view the various examples under running conditions, and although an owner may exercise his individual taste as to the design above the water line, there are certain accepted under-water lines that, although they may be slightly varied, cannot be far departed from. This is where the novice must depend upon the observation of the behaviour of existing launches, and upon the knowledge of his builder.

The following hints are worth bearing in mind, in selecting the type of hull. 1. The shallowest



Government Tourist Department Launch at Taupo

water a launch is expected to operate in, must decide the deepest draft. 2. If creeks and narrow waterways are to be constantly navigated, unnecessary length is an encumbrance. 3. Comfort should not be sacrificed for the saving of a few inches of beam or head room. 4. It is impossible to hit on a hull that will be ideal for both smooth water, harbour work, and ocean cruising.

The type of motor to be installed does not admit of much choice. The actual make of the type selected is a difficult thing for even a mechanic to decide. Each type, the slow speed, low-tension, and the high speed, high-tension, has so many good engines to select from, and both types have such extremely faulty designs on the market, that again, only the actual (not heresay) knowledge of the operation of different engines can help the buyer.

Of course, new engines are constantly being put on the market, untried locally, but excellent machines, but before venturing on purchase, the amateur should be perfectly satisfied that the engine can put up the performance that is claimed for it, or else have such a stiff guarantee that he can "get from under" with his money, in case the results of trial are not up to specification.

In choosing a motor, when the type of hull is fixed, bear in mind, that a high speed, light engine, with a small propeller area, is not the type of motor for a heavily built cruising or working boat, any more than a slow speed, heavy engine would be suitable for a racing craft. Yet the mistake is often made.

Accessibility is a most important point to the amateur engineer. Machinery must always be subject to breakdowns, and seeing that they are not avoidable, the object should be to select the engine (other things being equal) that is most easily dismantled and put together again should it be necessary to fit a spare part while on a trip, or in some locality where expert help is not available.

The fuel question is also a vital matter with benzine at its present price, and, as there is not likely to be a drop in cost in the immediate future, the engines that are fitted, or can be adapted, to run on kerosene and the heavier oils, should not be lightly passed over.

Above all, the buyer should avoid the now fairly common mistake of importing his own engine, if he be a layman. The slight saving in first cost that he may make by cutting out the possible profit made by an agent, is not in any proportion to the trouble and expense he is inviting when anything does go wrong.

When trouble happens, he has no agent to make good to him, and no stock of spare parts in the Dominion to draw from. Broken parts have to be returned to the makers, in most cases, for inspection before they will replace under their guarantee, and the buyer has to face the prospect of losing perhaps the better half of the season's sport while awaiting renewals, or standing the expense out of his own pocket.

Finally, don't expect to get a speed out of a hull, for a given horse-power that is phenomenal. The beginner's ideas of speed of launches is, to say the least of it, optimistic. Get an estimate of speed from the builder and the agent by all means—it will probably be found that they will not be a quarter of a mile out—but don't try to get a guarantee of speed unless you are prepared to pay for it, for if they give a guarantee, they have to get safe, and the increased cost demanded is only to be expected, when the risk of possible rejection is taken into consideration.

Otago Yacht and Motor Boat Club

At the annual meeting of the above club, held recently, the question of the accommodtaion for small craft was touched upon by Mr. Hanlon (Commodore), in a toast to the Otago Harbour Board. The Club has now one of their members as Chairman of the Harbour Board, and to this happy circumstance is no doubt due the fact that yachtsmen in Dunedin are now about to have good protection for their boats. Mr. Moller, Chairman of the Harbour Board, stated that he would see fair play, but stated that yachtsmen would have to assist in paying interest on money borrowed to carry out the scheme, and a charge of £1 per annum per boat was fixed upon.

W. R. TWIGG

Engineer and Importer,

QUAY STREET, AUCKLAND.

WRITE for my 1913 Catalogue. The Largest Marine Motor Accessory Catalogue issued South of the Line. ¶ Largest stocks in the Dominion. ¶ Prompt delivery and special attention to Country Orders.

NOTE new address: QUAY STREET, Opposite WATERMAN'S STEPS.

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During 1912 and 1913 the Claudel Carburettor has PROVED its efficiency. Its successes include :—

1912	**Grand Prix d' France**	**1st**
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In Marine Work, Boats using CLAUDELS' won 90% of the prizes at the 1913 Monaco Motor Boat Meeting.

Its reliability is demonstrated by the large number of leading manufacturers who standardise CLAUDELS, and its economy in consumption is verified by properly authenticated figures which are unapproached.

A CLAUDEL can be fitted to any engine at a minimum of expense and in most cases will save its cost in one season's running.

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Telephone 4171.

Motor Boat Equipment

There are many small details of equipment about a motor boat, each one of which adds to the convenience and comfort of the users, and while many of these are fitted by the builders, other small accessories can be added and fitted by the amateur.

In equipping a boat, everything that is not absolutely necessary, is of course more or less of a luxury, but few would consider they had much of an outfit if it consisted of the bare boat shell and engine.

Some of the fittings that should be a part of the original installation are, to begin at the largest and most important item, as follows: THE REVERSE GEAR, and it does not require much comment, for all the engines of better makes have gears attached as fixtures. But, if the engine finally selected does not carry a gear, by all means have one fitted, for the added safety and convenience of operation will more than pay the purchase money in a very short time. Most oil engine dealers also stock reverse gears. There are some who advocate the reversible propeller in place of a reverse gear, and there is no doubt that in point of weight in a light boat it usually has advantages. But the wear and tear in the boss of propeller, on the turning pins of the blades, added to the cost of blade renewals, makes its installation a matter of personal rather than mechanical choice. It is a significant fact that nearly all engine makers advocate the reverse gear in place of the reversible propeller.

BILGE PUMP

There is no doubt that the average owner does not pay nearly enough attention to this really important item.

A bilge pump may easily become a life saver, for it will keep water down in case a hole gets knocked in the bottom, after the hole has been plugged, or will be a valuable assistant in any fire aboard, except a benzine fire.

But more important than all, its continual use will keep the bilges clean, and very much lessen the chances and spread of fire, by drawing off any oil or benzine floating under the floor boards.

Usually, if the bilge pump is called for, on one of the small craft, it means a wild hunt underneath odd gear in the after locker, and when produced turns out to be a bit of battered brass pipe, that may or may not pump.

The larger boats are usually better provided. The best type for boats of the larger size, is a pump on the Farringdon principle, mechanically operated. This may be fitted in practically any boat, with eccentric and strap, fitted on after side of reverse gear.

The object of placing it aft of reverse gear is, that seeing it is not wanted in constant operation, the gear may be thrown out momentarily, the shaft stopped, and the link to pump removed until wanted again.

The bilge pump used on smaller outfits does not vary much in type, but in making the selection, see that it is of the double-acting type, and that the barrell is of good, heavy guage brass tubing. Then, having made your selection, don't keep it in the after locker.

ELECTRIC LIGHT

This valuable asset has decreased in cost so tremendously of late years, that in any cabin launch it has become more of an absolute necessity than a luxury.

The cleanliness and absence of smell are two points that add greatly to its value on a launch, where one has to both eat and sleep in the one cabin.

Being mechanically generated it is, of course, subject to occasional breakdown, but the outfits have been made so reliable, and the cost of accumulators has dropped so much that the original arguments of cost and unreliability can be no longer urged.

Quotations can be obtained now at a very reasonable figure for the following outfit:—Friction-driven dynamo, accumulators, marble switchboard and mountings, lamps and fancy fittings.

When installing, it is well to include an engine-room fitting, called "a trouble lamp," which consists of a lamp with wire guard over globe and length of flexible.

A long way in a long time—A Dinghy fitted with Motor

A wall plug should be provided on wall of engine-room, and also on after bulkhead in the cockpit. This is handy for landing passengers after dark.

Side lights and head or masthead lights are provided, and make lighting up after dark a simple matter.

It is well, in case of a short circuit, however, to have a set of oil lamps ready trimmed .

STEERING GEAR

This may be quite simple and inexpensive, or practically any money may be spent on it, but simple or elaborate, above everything let it be strong. It must be borne in mind that on it, beyond all the equipment, do the lives of passengers depend.

This statement does not even except the motor, for the worst a motor will usually do is to stop, while if the launch is temporarily rudderless anything is possible.

This steering business should be forcibly impressed on beginners especially, for a 35 h.p. launch was taken out of one of the harbours the other

ERNEST J. FENN

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Specialist in Launch & Ship Lighting

I MAKE A COMBINATION SWITCHBOARD SPECIALLY DESIGNED FOR LAUNCH WORK, MOUNTED WITH AN AUTOMATIC ACCUMULATOR SWITCH. THIS BOARD (AND SWITCH) IS SUPERIOR TO ANY IMPORTED, AND OF MODERATE PRICE + + + +

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ALL DESCRIPTIONS OF STEEL CASTINGS
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Specially Prompt Attention to Distant Orders

ENGINEERS

day, with the rudder lines joined up with ordinary parcel twine.

A very convenient and cheap system that is suitable for small open launches, and which may be installed by the veriest amateur, is one often adopted in American launches. One rudder line is taken from the tiller, through the coaming of the cockpit, and is run right round the entire boat through brass eyelets, and back again to the tiller. On either side the lines are kept spread by passing round galvanised sheaves placed slightly in advance of rudder stock. The effect of this arrangement is that one can stand in any part of the boat whatever, and by grasping the continuous line have complete control of the steering.

SILENCING

There are no less than three recognised types for effecting this, and until lately no one has been really satisfactory. The three types were the old drum muffler and its many variations, such as the mushroom, umbrella etc., then came the exhaust straight overside, with the water introduced into exhaust pipe just on the inboard side, and then the many types of underwater exhaust.

The objection to the first, or drum type, was, first, that it had to be an inboard fitting, and, secondly, that it was difficult to keep cool.

Certainly there was a most successful water jacketed muffler invented, and much used, that is successful as far as muffling was concerned, but still it was an inboard fitting, and as every inch of room was valuable it was effective, though not ideal.

The main objection to the overside exhaust, with the water brought into the pipe, was that in order to prevent it being drawn back into the cylinders when running slowly, the water had to be introduced so far along the pipe, that a long expanse of almost red-hot pipe was constantly in everybody's way on one side of the ship. Even covered with asbestos this heat was unbearable to one's hand.

This exhaust is still the most in vogue, because so many under-water exhausts have been unsuccessful, but its day is done, for so much attention has been given to this question that the under-water exhaust will shortly be practically universal.

The chief trouble of this exhaust in the past has been that in going astern, the water has been backed up the exhaust pipe, and naturally bad trouble has arisen in the cylinders.

This exhaust has, however, now been perfected, and there are at least two that we have been afloat with, and even when we were given control of the ship for some half hour, we found it impossible to get them into trouble.

Care needs to be taken in the selection, but perfect under-water exhausts do exist, and anyone building or installing an engine this coming season, should insist on this type. It is quite efficient, and cheap.

In this article we have only touched on some of the prominent items, but the points given are sound.

Speed Boats.

This is practically a misnomer for anything we have as yet in New Zealand.

Two or three fast boats we have had, it is true, but when compared with the boats that compete in the big meetings in the States and Europe, it is impossible to place ours in the same class.

Twenty-two or three knots is, so far as we know, the greatest speed yet attained here, and unless, perhaps, for the visit of some exhibition boat, we do not at present seem likely to have this improved upon.

Apart from the cost of a speed boat, the real reason that nothing fast has been put out, is probably the fact that from a sporting point of view there is nothing for her to compete against, and although the fascination of running a fast boat is great, it very soon begins to pall if there is nothing to try conclusions with.

It would, in our opinion, be quite within the bounds of possibility to get entries for a class of, say, minimum 25 knot racing craft, in ample time to put on a series of events about Exhibition time in Auckland, if decent prize money were put up, and the event was advertised throughout the Dominion in ample time to give intending competitors a chance to get designs out, and import the motors.

Once a class is established out here, and some half-dozen boats are in existence, a market is immediately established for exchange and sale of boats of this type, and the absence of any chance of, at present, selling an outfit, if perchance the owner should wish to, is in itself a deterrent to any possible adventurer.

Merryweather's "Taper-Top" FIRE EXTINGUISHERS (Approved of by the Marine Department)

SIMPLE
PORTABLE
EFFICIENT
SELF-ACTING

THE "Taper-Top" admirably meets the demand for an inexpensive and reliable machine for extinguishing fires. It is operated by merely striking the brass knob on top, when a powerful jet of chemical fluid can at once be directed on to the flames.

Invaluable for Petrol and Oil Fires which plain water will not touch.

For Motor Boats, Factories, Schools, Hotels, Residences.

Can be operated by Man, Woman or Child.

1½ GALLON SIZE
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Each Machine with two complete charges. Write or call on

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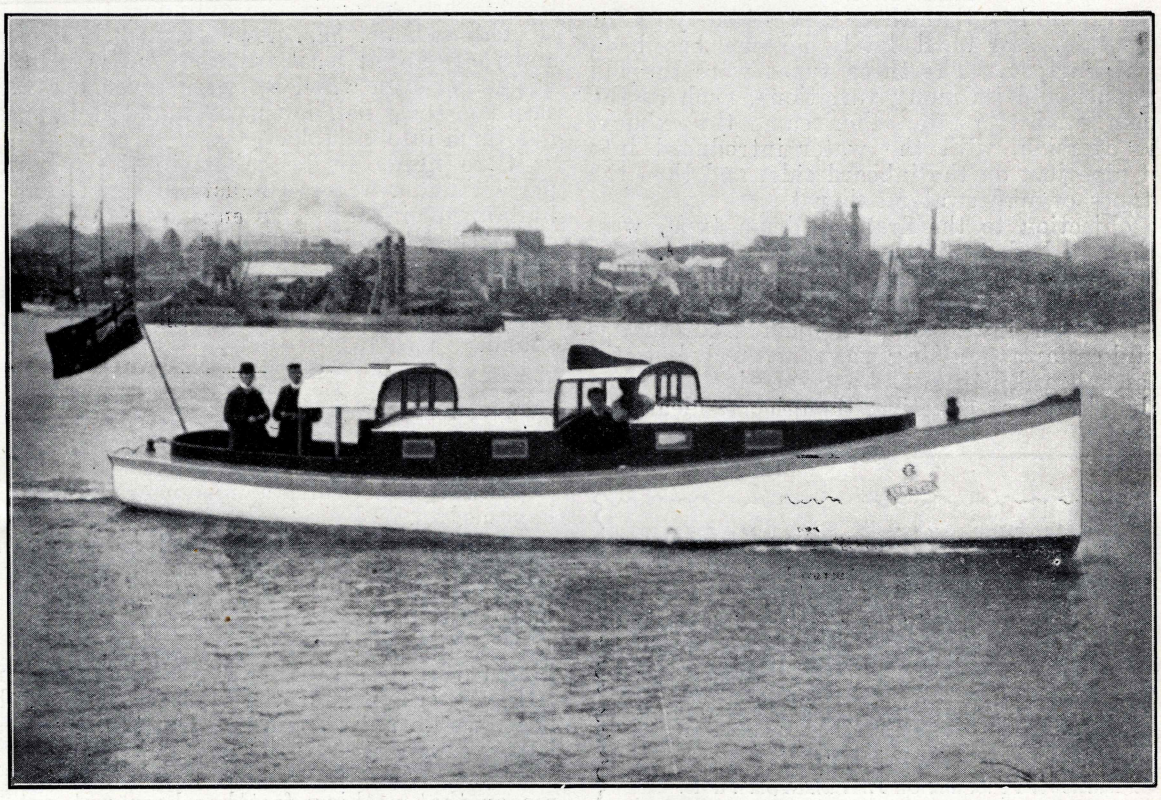
Launch, Yacht and Boat Builders and Designers



Launch "All Black" built for Mr. R. Nixon by Messrs. Harvey & Lang

Builders of the popular launches:—ALL BLACK I., II. and III., PIHARA, VIRGINIA, ALLEYNE, SETTLER, NIAGARA, TARANUI, ELSIE and many others.

Mullet Boats and Cruisers a Speciality.

MR. YACHTSMAN—If you are thinking of building that boat during the winter, come to us now. Let us quote you a figure now for construction during the winter. If you leave it too late you may be disappointed. We have satisfied others. Why not YOU?

Oil Launches and Yachts Hauled up, Cleaned, Repaired and Painted at Shortest Notice.

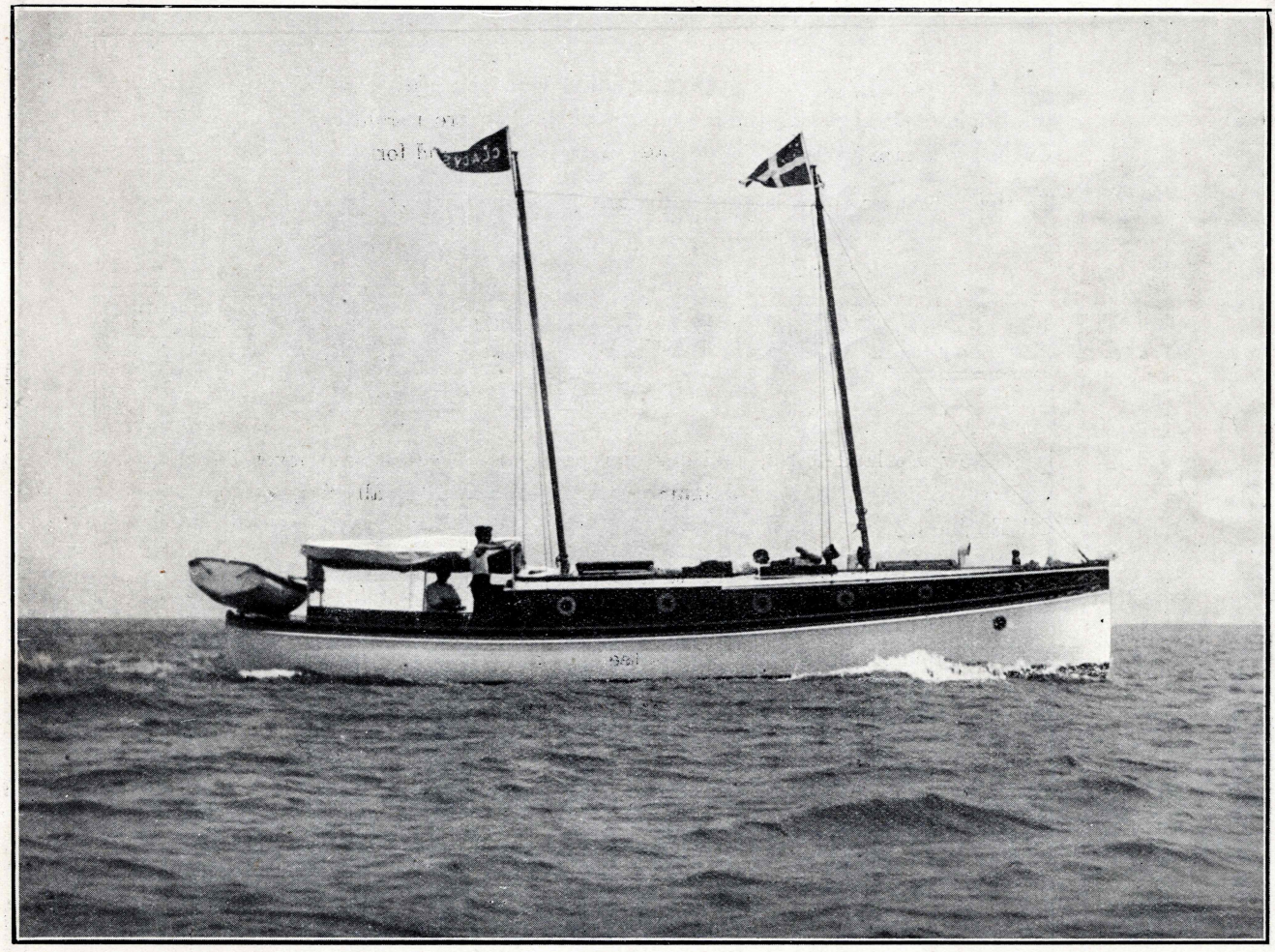
Suitable Motor Boats for New Zealand

Launch "Gladys"

Length, 38ft. by 8ft. 6in. beam; draft 3ft. Designed and built by Messrs. Bailey & Lowe. Owned by Mr. Chas. Court, of Auckland.

The selection of the Gladys, as an example of a typical cruising launch, is the outcome of a careful inspection of many of the launches of the various fleets.

This launch has been long enough afloat to have all her seagoing qualities thoroughly tested, and the interior arrangements have been designed to give the maximum of comfort and convenience, while occupying the least space.



Launch "Gladys," built by Messrs. Bailey & Lowe, of Auckland. Length 38 ft., Beam 8 ft. 6 in., Draft 3 ft.

The hull is built of two skins, one diagonal, and one fore and aft, and the general arrangement is as follows:—

Right forward in the peak is a 3ft. rug locker, with anchor chain locker under, and immediately aft of this is the owner's state room, which has a length of 6ft. 6in., with a general headroom of 5ft. 7in., and 6ft. headroom under centre skylight.

The owner's berth is on starboard side, kept up 3ft. from floor, and underneath is fitted a nest of 6 drawers, with ample storage space.

On the port side is a settee, upholstered in dark green Utrecht velvet, which may be used as an extra berth if needed. Three drop down lockers are fitted under. Space between berth and settee at after end of room is 2ft. 6in.

Ventilation is cared for by four open scuttle ports, and brass ventilating cowel. Sliding pannelled door leads from stateroom to engine room, which is slightly forward of amidships, and is 7ft. long by about 8ft. clear inside beam. Two lockers are provided for tools and engine stores, as well as separate battery and oil cupboards.

On port side aft is an oilskin drying wardrobe, and on starboard side forward is fitted a crockery rack and sideboard. The engine is a 25/40 h.p. 4-cylinder medium weight Sterling. Bilge pump is fitted in engine room on port side aft.

Electric light is fitted throughout, the equipment consisting of a dynamo, accumulators, and black marble switchboard, the lights served being located as follows:—Owner's state room two, two fixed lights and one inspection light on flex in engine-room, four lights in main cabin, and one portable light fitted aft in cockpit. Side lights and mast-head light are also electric, and ordinary oil lamps are also carried as spares. Ventilation to

The ANDERSON Marine Engine is the Ideal for Motor Boats

The developments of trade in the Dominion demand a First-class Marine Oil Engine. Recognising the importance of this, we are manufacturing an Engine that meets this special demand in every shape and form.

To the purchaser there is this important factor, viz. : that

ANDERSONS LIMITED

is a New Zealand Firm, and for the past twelve years has devoted untiring attention to the designing and construction of all classes of Oil Engines.

They are available on the spot to give the results of their experience to clients, and to instal Engines in any part of New Zealand.

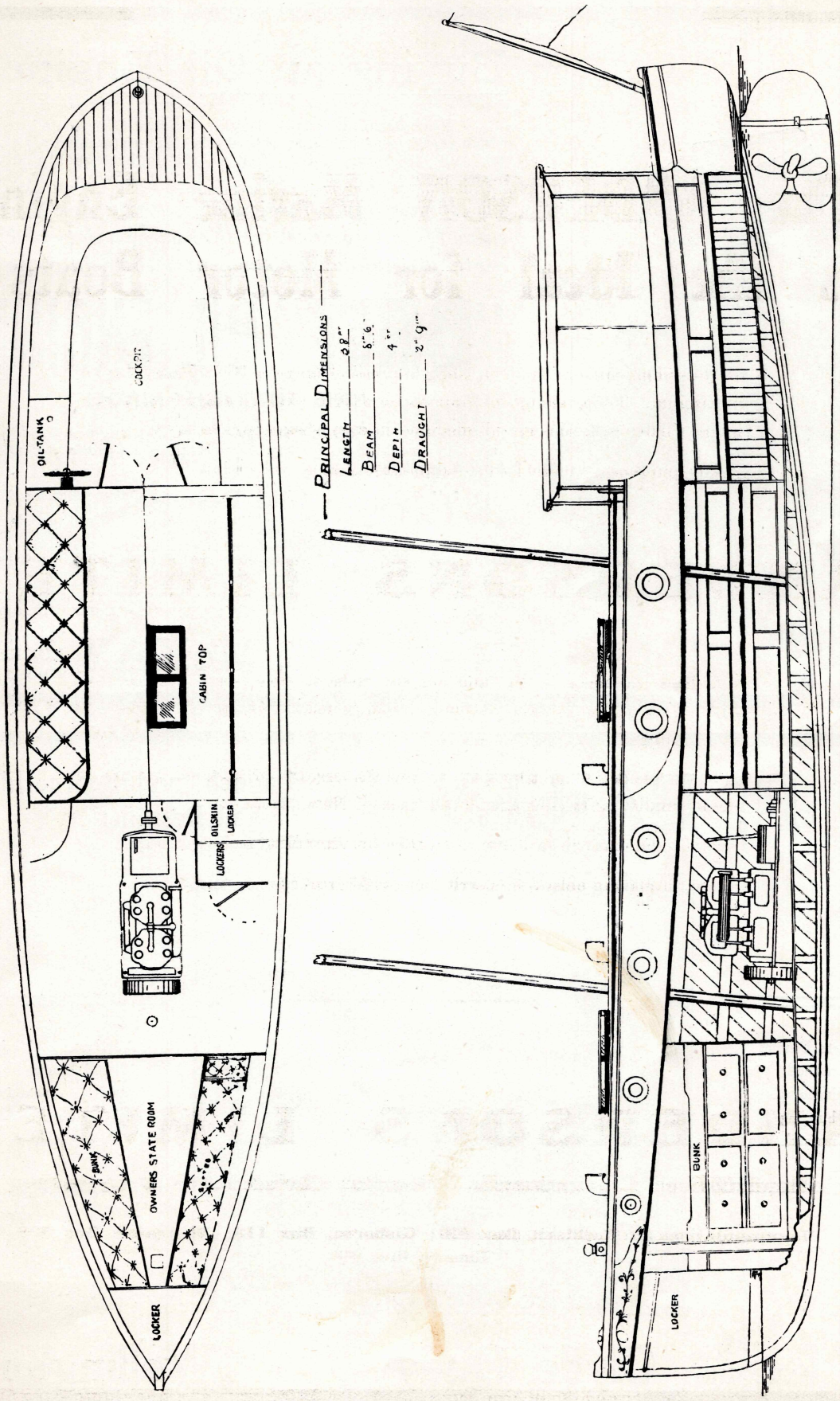
Every Engine carries a liberal guarantee for durability and efficiency.

Before purchasing elsewhere write for our Marine Engine Catalogue.

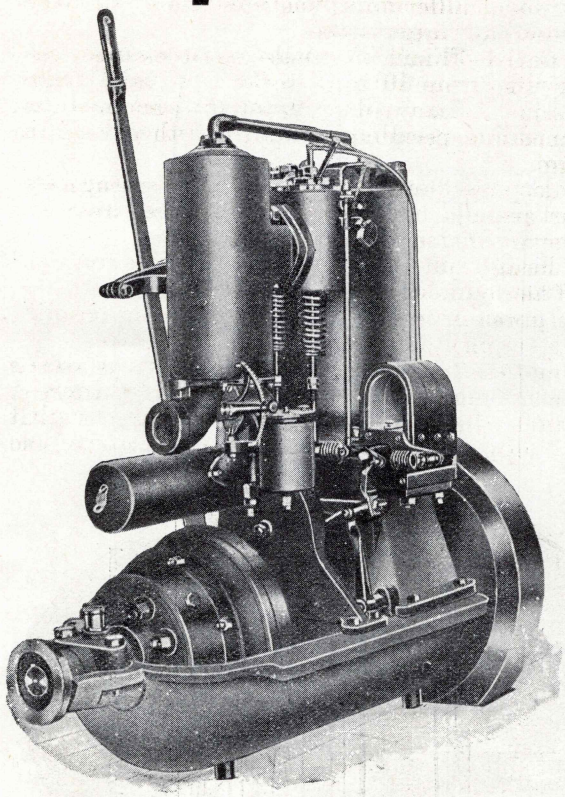
ANDERSONS LIMITED

Head Office: Christchurch. Works: Christchurch & Lyttelton.

Representatives at Auckland, Box 816; Gisborne, Box 118; Wanganui, Box 306 Timaru, Box 164.



Launch "Gladys." Designed and Built by Bailey & Lowe, of Auckland



8 H.P. 5½" x 8"
£105 COMPLETE

Catalogues on Request

Buying an Oil Engine

When deciding upon an Engine, the first thing to do is to decide which type is most suited to your work. Then you must see that you get value for your money—that is, the highest quality at lowest possible price.

If you buy a foreign engine you don't get full value for your money, for they carry a duty of 20 per cent—just think—20 per cent thrown into the sea!

"BRIT" OIL ENGINES

ARE BRITISH MADE

therefore they are low in price because ***British Engines are duty free!*** and they are high in quality because they are ***made in England by British workmen!***

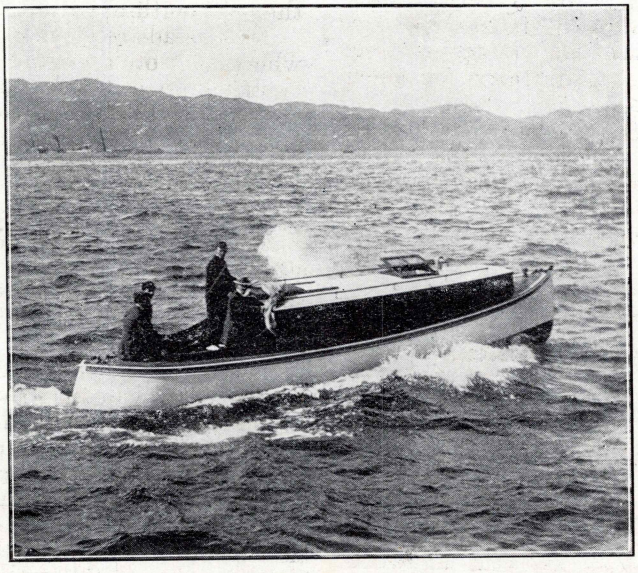
"Brit" Engines Give Results but no ridiculous claims are made for them. An 8 h.p. "BRIT" will NOT run for 8 hours on 1 tin of Benzine—neither will any other engine made. But for every gallon of oil burnt, a "BRIT" will give you as much honest work as measured in ton miles, or pounds pull on your tow rope, as any other engine on the market—and considerably more than most of them. "BRIT" ENGINES are simple and reliable and will give absolute satisfaction. Each engine is supplied with a propeller to suit the boat in which it is to be installed. INSPECT ALL THE ENGINES ON THE MARKET—COMPARE PRICES AND WORKMANSHIP—AND YOU WILL CHOOSE A "BRIT" IN THE END, AND REMEMBER YOU WILL SAVE **20%**

Enquiries and Inspection Invited

A. C. McKAY

Ferry Bldngs, AUCKLAND
'PHONE 3612

E. R. BAILEY, Yacht, Launch, and Boatbuilder and Designer



Complete Designs furnished and Estimates given for building from owner's designs

All classes of Yachts and Launches built or repaired. Dinghys always on hand, Boats for Hire.

SHED 49, BOAT HARBOUR, **Clyde Quay - - Wellington**

engine-room is by four 6in. open scuttle ports, and two extra large brass cowels.

The main cabin is 9ft. long by extreme beam, with 5ft. 7in. head room in centre. Seats forming lower berths are 24in. wide by full length of cabin, with lockers for stores fitted beneath, top berths being swing-backs, forming back of seats in daytime. Sleeping accommodation can be found for eight in the main cabin. Upholstering is in dark green Utrecht velvet, as in owner's state-room.

Centre double-flap table is of special design, 4ft. 6in. long by 30in. wide when opened up, fitted beneath with two automatic latching cupboards, of ample capacity for all stores for a week-end cruise, while over cupboards are three cutlery shelves.

The bulkheads, coamings, and cabin top, of both main cabin and owner's state-room, are panelled and beaded, finished out in white and gold, margined with fine green line.

Ventilation of main cabin is by centre skylight, built of teak, 3ft. by 2ft., glazed with embossed glass, protected with brass grills, and four 6in. open scuttle ports. Large bevelled-edge looking glass is fitted as panel in sliding door leading to engine-room.

Binnacle stand is fitted on after bulkhead with glass port for helmsman to view compass from cockpit, which is 9ft. long fitted with seats all round, the after section being removable to give access to large stern locker.

The lockers beneath seats are built to take benzine tins, and under seat on port side is fitted the fresh water tank. Coaming round cockpit is 7½in. above deck line, with hardwood capping piece all round. Double swing panel doors give access to main cabin.

A teak, brass-bound steering wheel is fitted against cabin bulkshead on starboard side, steering lines being carried under seats to rudder quadrant aft, under deck. Engine-room telegraph is close at hand.

The after-deck is of sufficient size to carry dinghy when cruising, and carries heavy brass rail and standards. Provision is made for canopy awning over cockpit, with side curtains all round, for open-air sleeping in summer time.

The top of cabin is fitted with hardwood hand-rails, carried through brass standards. The heavy mooring bollard is of hardwood, carried through deck and stepped to kelson.

The fine appearance of launch in cruising trim, with masts stepped, may be gathered from the photo. reproduced on p. 613.

Clifton Marine Engines

The Clifton Marine Engine, made by the Carlisle Finch Co., of Cinn., U.S.A., is certainly not as widely known as it should be.

It is true that engines of this make were installed as long ago as the year 1900 in New Zealand, but these were mostly motors of small sizes.

These original importations are still at work, and from the class of workmanship and material put into their building, there is no reason why they should not have many years of work still ahead of them.

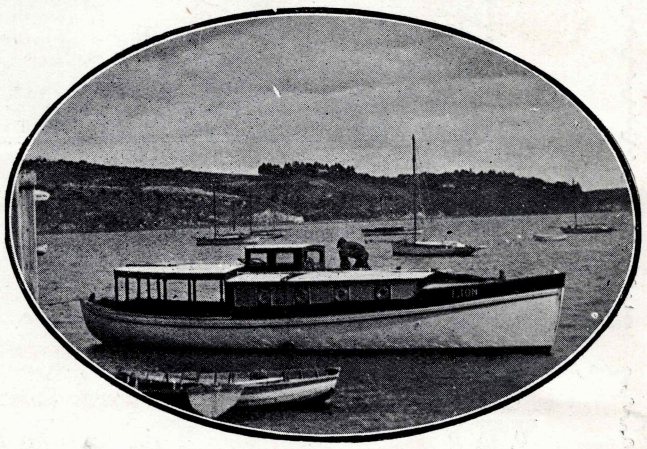
Lately several of the larger engines have been installed in boats out here, and the early promise made by the smaller units has been more than kept by the later and larger types.

The Carlisle Finch Co. make as stock sizes, engines varying from 10 h.p. to 65 h.p., and larger sizes to order. Heavy-duty low-speed, and medium weight, medium-speed engines, are both covered in this range.

It is not possible to give details of these engines in a short article, but one or two features are certainly worthy of mention.

The design of these motors provides for an offset of the cylinders—the most modern practice—giving a greater turning movement to the crank, and also a slightly lengthened effective stroke.

The increase in horse-power of the various sizes is effected by increasing the number of cylinders. For instance, the 21 h.p. 3-cylinder engine is built of three 7 h.p. cylinders side by side, and so on, so



"Lion," fitted with 12 h.p. Clifton Engine. Owner, Mr. McKenzie, Lake Wakatipu

that the number of spares needed in an equipment is reduced to a minimum. Another good point is the easy withdrawal of the pistons.

The heads are cast solid, with the cylinders, and whereas in other engines the whole cylinder has to be lifted to get at the pistons and rings, with the Clifton all that is necessary is to disconnect the big end of the connecting rod and remove the pistons from the bottom of the cylinders.

All inlet and exhaust valves are on the one side of the engine, and each valve has a screwed plug fitted over it, through which it can be removed in a few seconds.

On the whole engine there is not one packed joint—a very important thing in case of a temporary mishap.

The lubrication is automatic, the oil being maintained at a constant level in each crank pit. It circulates throughout the engine by a pump that draws from a small sump, to which the used oil is returned after having been strained.

The latest engine imported, a 21 h.p. 3-cyl., was fitted into the launch "Lion," built by Mr. James McPherson, a photo of which is shown. This engine is doing remarkably well up on Lake Wakatipu.

Messrs. Hayward and Garrett, of Dunedin, hold the agency for this engine, and have an attractive list of prices that will interest possible purchasers.

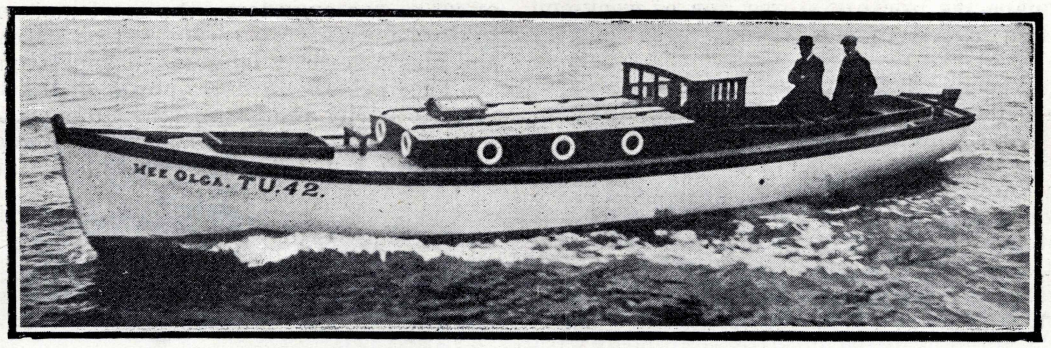
MILLER BROS.

Shipwrights, Motor Boat and Yacht Builders and Divers.

PORT CHALMERS (Close to Dock).

Siebe, Gorman, or Hinke Diving Apparatus for Hire. Agents for Norsk Skibs Ships' Bottom Composition. Thoroughly Experienced Divers sent to any part of the Dominion at lowest rates on shortest notice. Estimates for cleaning, painting and docking vessels. All classes of alterations and repairs executed.

Telegraphic Addres: "MILLER BROS., Port Chalmers." **Telephone No. 30.**



Motor Launches OF EVERY DESCRIPTION. For Strength and Superior Finish place your order with **MILLAR BROS., Boatbuilders' Shipwrights, and Divers, Port Chalmers.** Our Launches are in almost every Port, Lake, and River in New Zealand, and every one is giving satisfaction.

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Launches and Launch Accessories

Steering Wheels. Propellers. Sidelights.
Port Scuttles. Magnetos—Wizard & Bosh.
Fairleads Life Bouys.
Fenders, cork and rope.
Binnacle and Box Compasses.
Sea Anchors. Logs. Ventilators.
Megaphones. Accumulators. Brass
Bilge Pumps. Special Mooring Swivels.
Chain Pipes.
Rudder Line Sheaves, Bollards & Cleats.
And many other Fittings too numerous to mention.

INSPECTION INVITED.

No. 8, OCTAGON :: DUNEDIN.

REGAL ENGINES

Below appears a photo of the 32ft. cruising launch "Regal," built and owned by Mr. J. Reid, of King's Drive, Auckland.

This launch is fitted with a 32 h.p. high-speed Regal marine engine, and has put up some excellent performances.

This craft is the latest of a long line of champion launches built and owned by this enthusiast.

In looking up the records of the New Zealand Power Boat Association, we find that Mr. Reid holds all the records for the last six years, as the builder of the fastest launches.

This is a large claim to make, but the records are there, and cannot be disputed.

Starting with the "Togo," the forerunner of fast boats in New Zealand, built to the order of a local engineering firm, this builder followed on season after season with the following craft:—

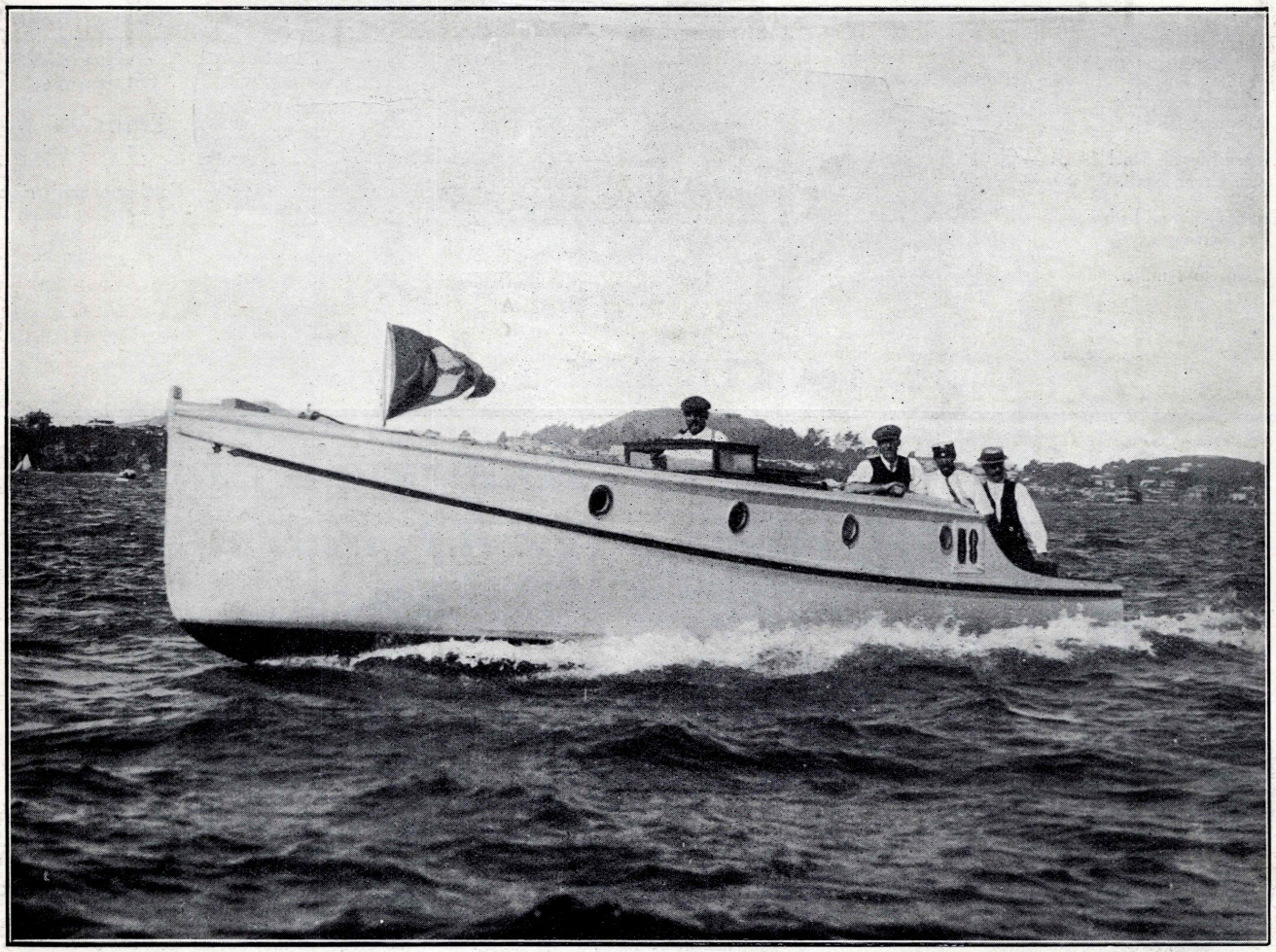
1. "Regal I."
2. "Regal II."
3. "Seabird."
4. "Regalia."
5. "Seabreeze."
6. "Sea Wolf."
7. "Madge."
8. "Regal."

The last "Regal" is the fastest of them all.

In every race in which any of these launches entered, their names appeared at the head of the list as "scratch."

Mr. Reid designs and builds his own hulls, and it is not to be wondered at that he takes a great pride in his performances.

Among the agencies held by this designer and builder, are the Regal engines, and the Hyde propellers, and if any of our readers are seeking information, before deciding on the outfit they will go in for, Mr. Reid will be only too happy to supply full information, giving them the benefit of his long and successful experience in hulls, engines, and propellers.



"Regal" 32 ft. long, 6 ft. 10 in. beam. Fitted with Hyde Propeller and 30 h.p. Regal Engine

HAYWARD & GARRATT - Importers

Sole Agents for CLIFTON MARINE ENGINES.

21 Bath St., DUNEDIN.

POINTS:

Cylinders offset from crank shaft.

Pistons removable from bottom of cylinder.

No joints to break.

Pump and Splash Lubrication.

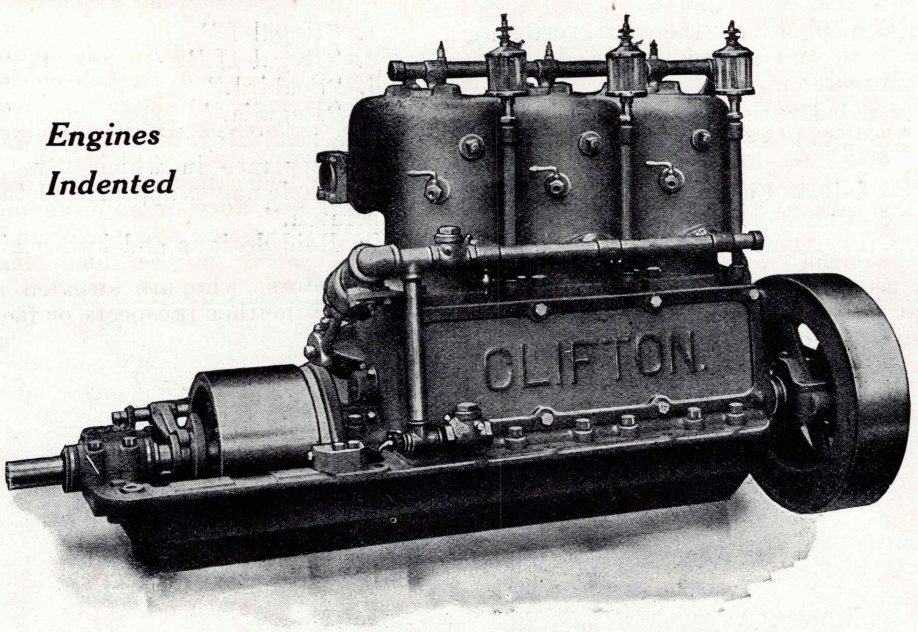
Valves removable through Plugs.

Open Hearth Steel Cut Crank Shaft.

Machine cut oil bath reverse gear.

Magneto Ignition.

Engines Indented



NOTE:

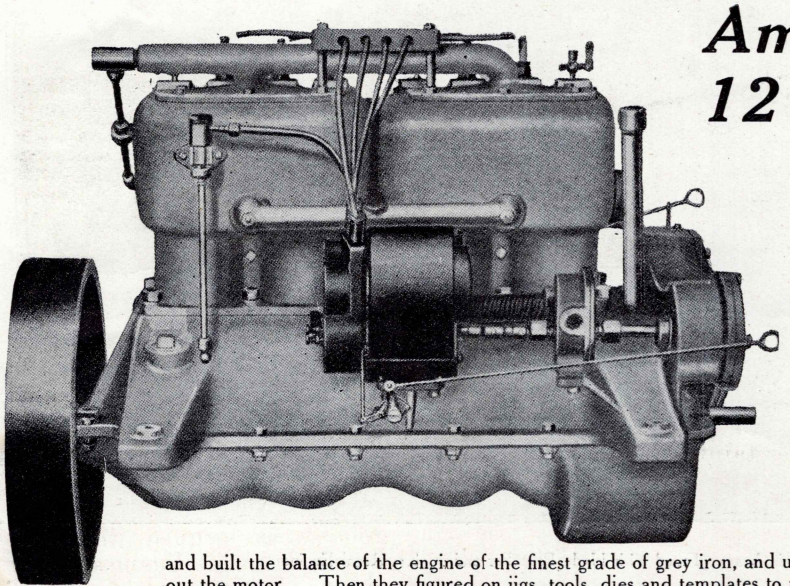
Engines are made for both Heavy and Medium Duty to suit working or pleasure launches.

Prices are low as possible consistent with first class work.

Every Engine is guaranteed.

Catalogues and Prices for coming season to be had on application.

15 h.p. 3 Cyl. **CLIFTON** Revolutions 500 p.m.



America's Standard 12 h.p. Marine Motor

KERMATH

4 Cycle, 4 Cylinder 3½in. Bore, 4in. Stroke. Speed 600 to 1000 R.P.M. Weight 370 lbs.

"BUILT AROUND A PRINCIPLE"

THREE years ago The Kermath Manufacturing Co. of Detroit, Mich., decided to build the best 12 h.p. medium duty engine that could be produced and "Forget the cost," so they put 40 point carbon steel drop forgings in the crankshaft, cam shaft and connecting rods and built the balance of the engine of the finest grade of grey iron, and used die cast nickel babbitt interchangeable bearings throughout the motor. Then they figured on jigs, tools, dies and templates to make all parts absolutely accurate and to produce the engine n large quantities at a minimum cost. The result of adhering to this principle is the Kermath Motor selling at £20 to £25 less than any other engine of its power, depending on equipment. Of the size and type this engine represents, there is positively nothing better made in marine engines absolutely regardless of any cost or precedence. The man who buys a Kermath engine gets the best and takes advantage of our method of doing business, and if he buys any other engine this size he is tossing some good money to the winds. Our material is of the best, our workmanship is of the best and our price is based on the cost of production of one article made in quantity with a good margin of profit for our factory.

BUY THE ORIGINAL KERMATH. NOT AN IMITATION. Kermath Motors are designed by James Kermath and manufactured exclusively by the Kermath Manufacturing Company.

PRICE DEPENDS ON EQUIPMENT.

Write C. E. MACKIE Sole N.Z. Agent, **58 Durham St. W., AUCKLAND.**

Engineers or Boatbuilders?

Where to Draw the Line

There is no doubt that there exists throughout the Dominion at present a good deal of feeling between the engineers and boatbuilders, on the subject of the encroachment of the latter on the business of the former in the matter of supply and fitting in of oil engines.

Originally the oil engine agencies were all held by men or firms who were engineers by profession; nowadays about fifty per cent. of the engine agencies are held by boat-builders, who not only supply the boat and motor, but employ men to do the actual fitting in.

It is not our intention, in the course of these remarks, to join issues with either side, but the state of affairs at present existing is so obvious, and has come about so gradually, that it is almost impossible to pass it without comment.

In the early days, before oil engines had gained their present popularity, the established boatbuilders were, of course, better known men in matters maritime than the oil engine agents, and perhaps it was only natural that a man wanting an outfit of boat and motor should first of all state his wants to the builder leaving the selection of the motor very much in the hands of the man he knew best.

This was the beginning of the "commission business."

Commercial law demands that the seller of goods shall receive remuneration for his services, and it was only fair and just that where a boatbuilder had the casting vote between two engines (all things being equal), that he should receive payment for the time and trouble one assumes he took, to select the type of motor most suited to his clients' wants.

This was open to abuse (most things are), and as the engine agents failed to combine and arrange a fixed percentage to be given to boatbuilders for their efforts, it is to be feared that in some instances the discounts offered by some of the agents had more to do with the final selection of the motor than the excellence of the machine.

This was not particularly sinful of the boatbuilders, for after all, their knowledge of the individual motors was slight, and the engine agents claimed so much for the motors they represented, that it was impossible for the layman to always choose aright, and where a genuine uncertainty existed, naturally from a business point of view, the bigger discount won.

And here it must in fairness be said that even in the early days, many of the good builders selected the type of motor they thought the best, and stuck to it, uninfluenced by the question of discounts or no discounts.

When the motor launch business got thoroughly going, new builders sprang up in every direction, and so keen did competition become, that some of the builders were turning out the boats at actual cost, and depending on the discounts they received from engine agents for their profits.

Then the boatbuilder naturally began to speculate on the profits made by the engine agents, and to wonder if it was not possible to cut out the agent and retain all there was, in engine supplying, for himself.

Owing to the large number of engines that had now come on to the market, there was no trouble in obtaining direct agencies, and from this period on, trouble was in store for the genuine "engineer importer."

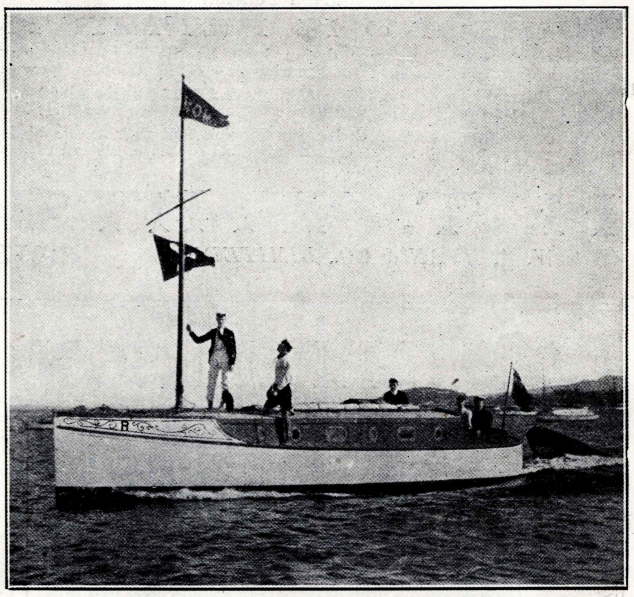
And here a word to the motor manufacturer overseas, if these lines should ever reach him.

The indiscretion shown by even some of the larger motor houses, in the appointment of agents, is astounding.

It would seem that all that is necessary to obtain an agency, is to forward an order for an engine, and ask for the territory, to obtain it.

We know of no less than four "agents" for marine motors, who are situated away in inland towns, with neither prospects or facilities for doing business.

One in particular holds such an agency. He is living on the shores of a small lakelet, forty miles



Launch "Roma," owned by J. P. Howden, Esq., N.Z.P.B.A., Auckland
35ft. long, 8ft. beam, 8ft. draught

from the coast, with no navigable waterway connecting the two. His only chance of doing business is when he drives to town once in three months.

Such ignorance of geographical conditions is inexcusable in these days of "commercial enquiry agents."

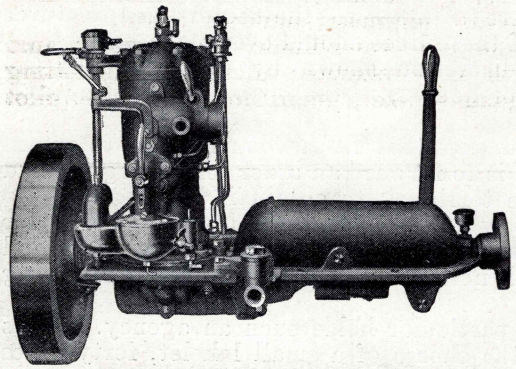
It may be, and probably is, argued, that the boatbuilder should have stuck to his business, and let engine importing alone. But why?

Every man has a right to make money, if he is suppyling honest material at a legitimate price. It might just as well be argued that the drapers have no right to sell boots and shoes. Certainly it is hard on the bootmaker, but there is nothing wrong about it.

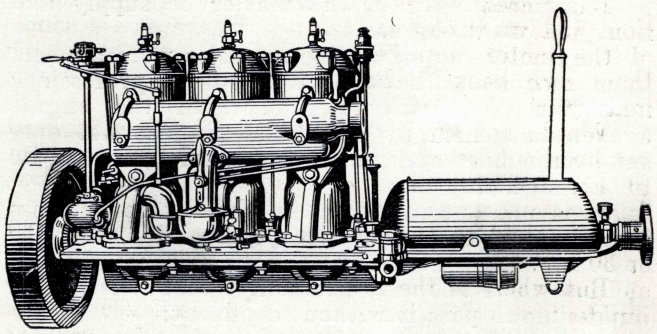
No! the crux of the matter is that the boatbuilder has seen, and taken advantage of, the commercial possibilities first. Had some of the larger motor agents put down a boatbuilding plant, in

FERRO
The World's Standard 2-Cycle Motor.

MARINE ENGINES



Single Cylinder High Tension



Three Cylinder High Tension

A RECORD IS BETTER THAN A HUNDRED PROMISES

The last word in engine design, built by the Ferro-Machine and FOUNDRY CO. of Ohio, the largest marine oil engine builders in the world.

This is not just a claim, it is a FACT, over **25,000** engines sold up to the end of last year. Could a man have a better guarantee than this?

They manufacture in such large quantities, that they are enabled to put their engines on the market at a REASONABLE price, instead of being prohibitive to the average man.

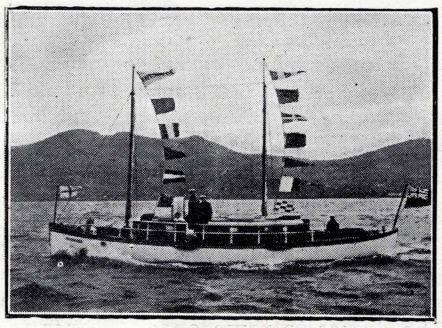
We will be pleased to mail you copies of some of the finest testimonials you ever read, from contented and satisfied users, and the largest boat-builders in America.

Captain Larsen, on September 18th, 1910, went through the mad NIAGARA WHIRLPOOL RAPIDS in an eighteen foot boat equipped with an ordinary stock eight horse power FERRO engine. This is the greatest test an engine was ever put to. Could you wish for more? Write us for catalogue and prices. Both will interest you.

H. T. WHITSON & CO., Box 108

(Late W. A. RYAN & CO., LIMITED) CUSTOMS ST. WEST, AUCKLAND

JAS. McPHERSON



SHIPWRIGHT, BOAT, YACHT and LAUNCH BUILDER. Established 14 years

Plans, Specifications and Estimates Prepared.

Builders of "Waimana" and "Tucana," holders of Otago Championships from 1905 to 1913.

Cement Works, Lower Frederick St., DUNEDIN.

THE

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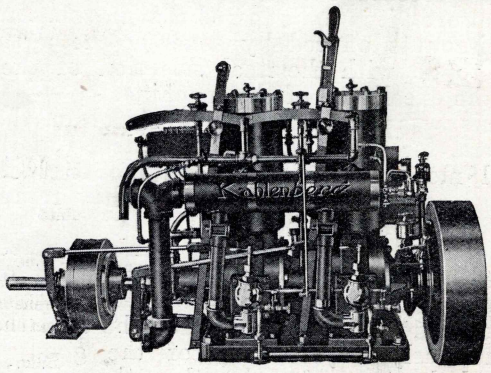
MARINE ENGINE

The acme of efficiency, whether running on gasoline or crude oil



EASIER TO CONTROL THAN A STEAM ENGINE!

KAHLENBERG Engines can be reversed without stopping from full speed ahead to full speed astern, same as any steam engine. Send for catalogues.

G. W. S. PATTERSON and CO.

Sole New Zealand Agents

Shortland Street, Auckland

conjunction with their original business, or had they amalgamated with some firms of boatbuilders, the present position would probably never have arisen, or if it had, the motor agents would have been in a position to meet the boatbuilders on their own ground.

The fault is not with the builders for seizing their opportunities, it lies with the engine importers for neglecting theirs.

The present state of affairs is not beyond alteration, and we expect in the near future to see some of the motor importers trying to get "some of their own back." But the boatbuilders have a long start.

We do not know that the boatbuilders have as yet been entrusted with the supply and installation of any large commercial units, and our remarks must be taken to apply more to the pleasure type of craft, and to the smaller powers, up to say 20 or 30 h.p.

But where is the line to be drawn? Is a boatbuilder, who admittedly is not an engineer, to be allowed to fit in any sized job, or will "the powers that be" step in and insist that jobs for a certain purpose, and of a certain h.p., shall be fitted in by expert men, subject to an inspection by someone in authority?

Undoubtedly some of the "boatbuilding engine importers" are competent to carry out all that is necessary on the smaller jobs, particularly nowadays when an engine comes from the manufacturers practically ready to instal, and the only tools that are absolutely necessary are a pair of stocks and dies, and a shifting spanner, but we maintain that when jobs reach a certain size or importance, due either to the horse-power or possible risk of life, that installation should be carried out by competent engineers, trained to the business.

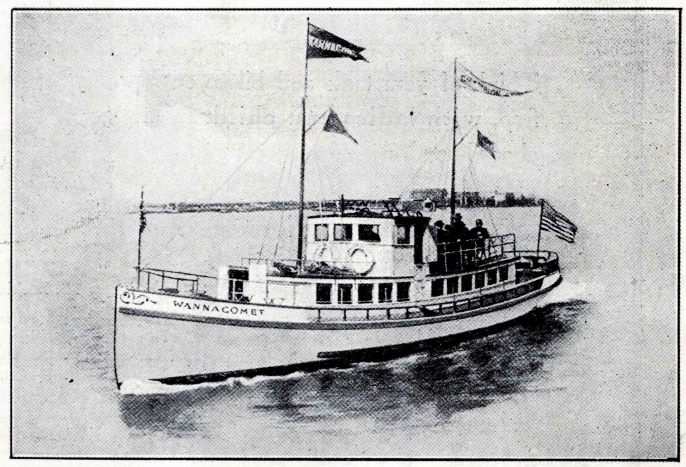
Just where the boatbuilder shall leave off, and the engineer begin, is a question that cannot long be left to individual choice; it is quite time the positions were defined.

The "Wannacomet"

This boat, we consider, is well worthy of a place in our illustrations, as she represents a type that is unique from a Dominion point of view.

The "Wannacomet" plys in American waters, and although she is licensed as a passenger carrying ferry boat, she is steered, and the engine operated, entirely by one man; in fact, the one individual is captain, engineer, and deck hand.

The engine is a two-cylinder 50 h.p. motor, and is fitted with a self-starter, all engine regulating gear, and gauges, etc., being brought to the pilot house.



The deck-hand casts off the lines, the engineer starts up his motor, and the skipper takes charge of the craft, and the pay-sheet shows wages paid to only one man.

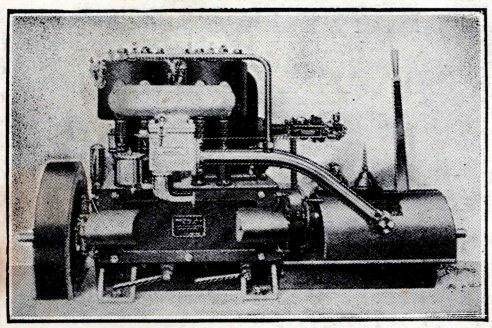
Contrast this with the legislation under which our motor launches run, and it will be realized that, although the Americans have perhaps cut the staff down to excessively fine lines, yet the employment of motors in launches that are licensed to carry passengers in the Dominion hardly needs the paternal care that is wasted upon it by the Government.

Chas. Bailey, Jun. Ship, Yacht and Launch Builder

Sole Agent for Auckland Province for

ANDERSON'S MARINE OIL ENGINES

Stationary and Portable Hoists



Anderson 14 h.p. Oil Engine

The Finest finished and most reliable Engine on the market

Before buying an Oil Engine, write for catalogue or call and inspect for yourself

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"EVINRUDE" ROW BOAT MOTOR

PRICE £25

Guaranteed for Twelve Months

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THE JOHNSTON ENGINEERING CO.

Phone 2998 CUSTOM ST. WEST AUCKLAND

Evinrude Row Boat Motor.

Very simple and easy to start.

Increases your speed up to 8 miles p. hour

No lubricators to fill, lubricating oil is mixed with the benzine

Runs smoothly and quietly for less than 2d. per hour.

U can learn to run it in a few minutes.

Don't hesitate, as it does away with the work of hard rowing.

Everyone who owns a row boat should have one.

WINNERS of Cruising Races will be DISQUALIFIED

Unless they carry an approved ..... Fire Extinguisher

The "VANGUARD" is approved by the best authorities

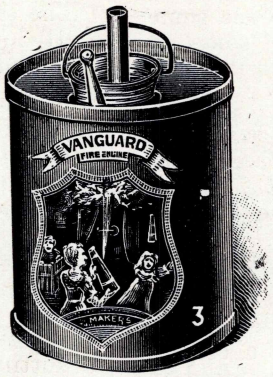
Every friend who takes a trip with you does so with implicit confidence in your care, for his or her safety.

Don't abuse it!

Think of your tank and bilges on fire, with ladies and children aboard, and no means of putting it out! Would that be

"Criminal negligence"?

DON'T DELAY



STRIKE KNOB
The Machine does the rest

A TESTIMONIAL

Dunedin Fire Brigade

June 14, 1912

Mr. H. F. MOSS, Dunedin.
Dear Sir,

I have seen the "Vanguard" Fire Extinguisher in use on two different classes of fire, Petrol and Boxwood. In each case the fire was extinguished quickly and effectually. The operation is simple, and there is nothing to get out of order. I am satisfied that the Extinguisher will do all that is claimed for it, and can safely recommend it to anyone requiring a Fire Extinguisher. Both tests set the machine were severe ones.—Yours faithfully,

(Signed) J. J. SALMON,
Dep. Superintendent Dunedin C.F. Brigade

Carry a "Vanguard" Chemical Fire Engine and effect your own Insurance

Write for Booklet "B" and Prices to

HENRY F. MOSS LTD., Sole Agents for Australasia 281 Princes St., Dunedin

Think of
SECURITY as well as SPEED.

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New Zealand Insurance Company Ltd.

THE PREMIER COLONIAL COMPANY,

CAPITAL :: £1,500,000

Paid up Capital and Reserve, £820,000

Claims Paid exceed £8,700,000

All Classes of Business transacted including

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H. E. KEMPTHORNE,
Manager, Wellington.

The New Zealand YACHTSMAN.

A Weekly Journal devoted exclusively to the interests of Yachting and Motor Boating.

44 Pages and Art Supplement

Every Friday.

14/- PER ANNUM (post free).
Single Copies **4d.**

W. A. Wilkinson, Proprietor,
DURHAM ST. W., AUCKLAND.

If you are interested in the sport you should subscribe to The N.Z. YACHTSMAN.

The Trouble Department

Conducted for the benefit of "Progress" subscribers without cost to them for answering questions relating to the operation of power boats. Those seeking advice are requested to be brief and explicit; at the same time this service is free and everyone is welcome.

By ROBERT WHITSON, Engineer

Question.—Can you tell me if there is anything in the claim made by some makers for their engines, that the cylinders are set out of line with the centre of the crank shaft? Where does the advantage come in, and what is the effect in actual running? —O. R., Picton.

Answer.—Yes, decidedly; there is quite a deal in the claim. Instead of being placed directly above the shaft, the cylinders are set slightly to one side, in the direction of rotation. The effect of this is that the length of stroke is slightly increased, but the most important feature is that, when the explosion takes place, the crank has already swung past the dead centre, so receiving a more effective thrust, and gaining in power. As the sidethrust between cylinder and piston is lessened, the wear and tear on cylinder and block are reduced. We have posted a diagram to your private address, showing the actual occurrence graphically.

Question.—I am running a three-cylinder high-tension engine in my boat, and during the last three seasons have accumulated quite a collection of spark plugs that have from time to time given trouble. I may state that I use the mica plugs in preference to the porcelain, as they are practically unbreakable, but even with the utmost care, oil cannot always be kept off the mica, and the result is a "missing" plug. Is there anything I can do to these plugs to dry them thoroughly out again?—A.L., Wellington.

Answer.—You do not give the make of plug, and quite a lot depends on this. Most mica plugs are built up of discs of mica, threaded on a central spindle, jammed together under heavy pressure, while others have the core of compressed mica, which is really almost a solid block.

The latter type, once they fail, it is practically impossible to do much with, in our experience, but the formrer, or mica disc type, may be rejuvenated by the following simple method: Remove the mica core from plug, and wrap in several thicknesses of blotting paper tied tightly round it. Then put the parcel in the hottest oven you can get, and bake for two or three hours. The cause of the trouble is that when the plug gets heated in the cylinder head the metal spindle on which the discs are threaded expands slightly, and the discs loosen ever so little, but quite enough to let oil creep in and gradually short circuit the plug. After roasting, dip the core in hard shellac and, when dry, it may be put to work again.

To Launch Owners!

"CUT YOUR FUEL BILL"

OUR PATENT KEROSENE ADAPTER (which we are Manufacturing at our Works locally) IS NOW SUPPLIED WITH ALL OUR 'ZEALANDIA' MARINE ENGINES FROM 9 H.P. UPWARDS

SEND FOR PARTICULARS OF THIS ATTACHMENT, AND OUR PROPOSITION RELATING TO 'ZEALANDIA' ENGINES WILL SAVE YOU MONEY

HOILAND & GILLETT LIMITED

Manufacturing Engineers

CUSTOM STREET W., and STANLEY STREET, AUCKLAND

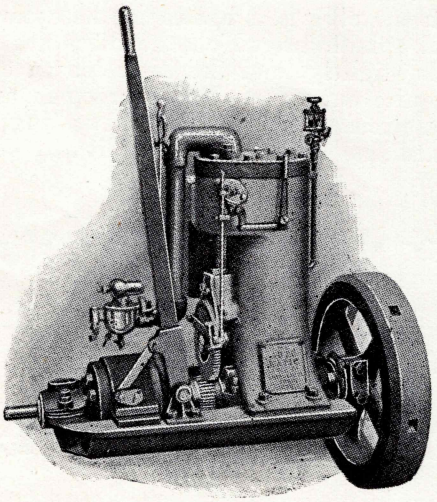
H. N. BURGESS & CO.

Launch, Yacht and Boat Builders and Motor Engineers,

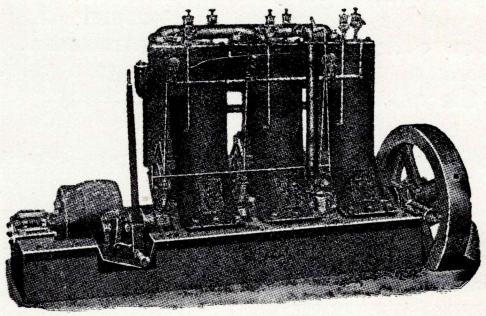
Judge's Bay, Parnell, AUCKLAND.

'PHONE 3497

WE are Sole Agents for N.Z. and Islands for the "AUTOMATIC" MACHINE CO., U.S.A., whose engines have proved their superiority over other makes for their remarkable RELIABILITY, Simplicity, Economy and CONSISTENT SERVICE. They are guaranteed for practically all time. Every part (except carburettors and lubricators) is Made and Tested in their own Factory, which is the LARGEST and most up-to-date factory in the world building marine oil engines. Engines are built in sizes from 3 to 300 h.p. 4 cycle (and 3 and 5 h.p. 2-cycle) to run on Benzine, Kerosene, Distillate, or Producer gas; Regular make and Break (low tension) Ignition or Dual Ignition. We carry a complete line of spare parts from cylinders to sparkpoints in case of breakage, though out of all the LARGE number of "AUTOMATICS" fitted in N.Z. in the last six years, we have only had to make one small replacement through breakage, and NONE through wear (barring a few exhaust springs and sparkpoints which of course must go sometime) and we give a more liberal guarantee than any other firm.



4, 6, and 12½ h.p. type

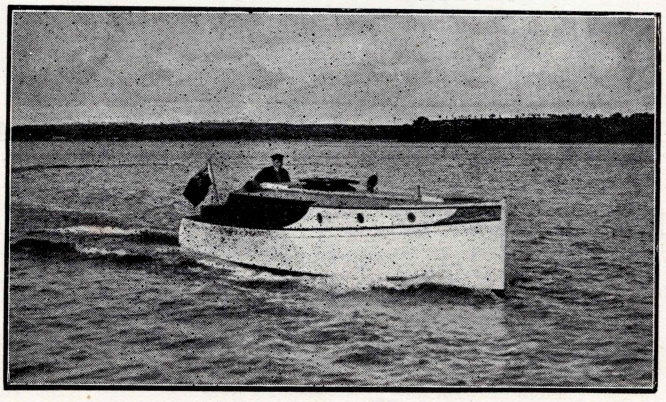


9-12, 18, 38, 75 h.p. type.

We have a well equipped BOAT-BUILDING SHOP and an efficient staff (the best good wages can procure in N.Z.), and we build all classes of boats up to 45 ft. Fast SEAWORTHY Comfortable CRUISERS and AUXILIARIES, our Speciality, our aim is NOT "How Many" or "How Cheap" we can build, but "HOW GOOD."

Launch "AUTOMATIC"

An Ideal Type of small Cruiser 28 to 30 ft. by 7 ft., fitted with 2 cabins and seperate engine room, speed with 6 h.p. "Automatic" engine, 8-9 m p.h.



HIGH CLASS WORK ONLY.

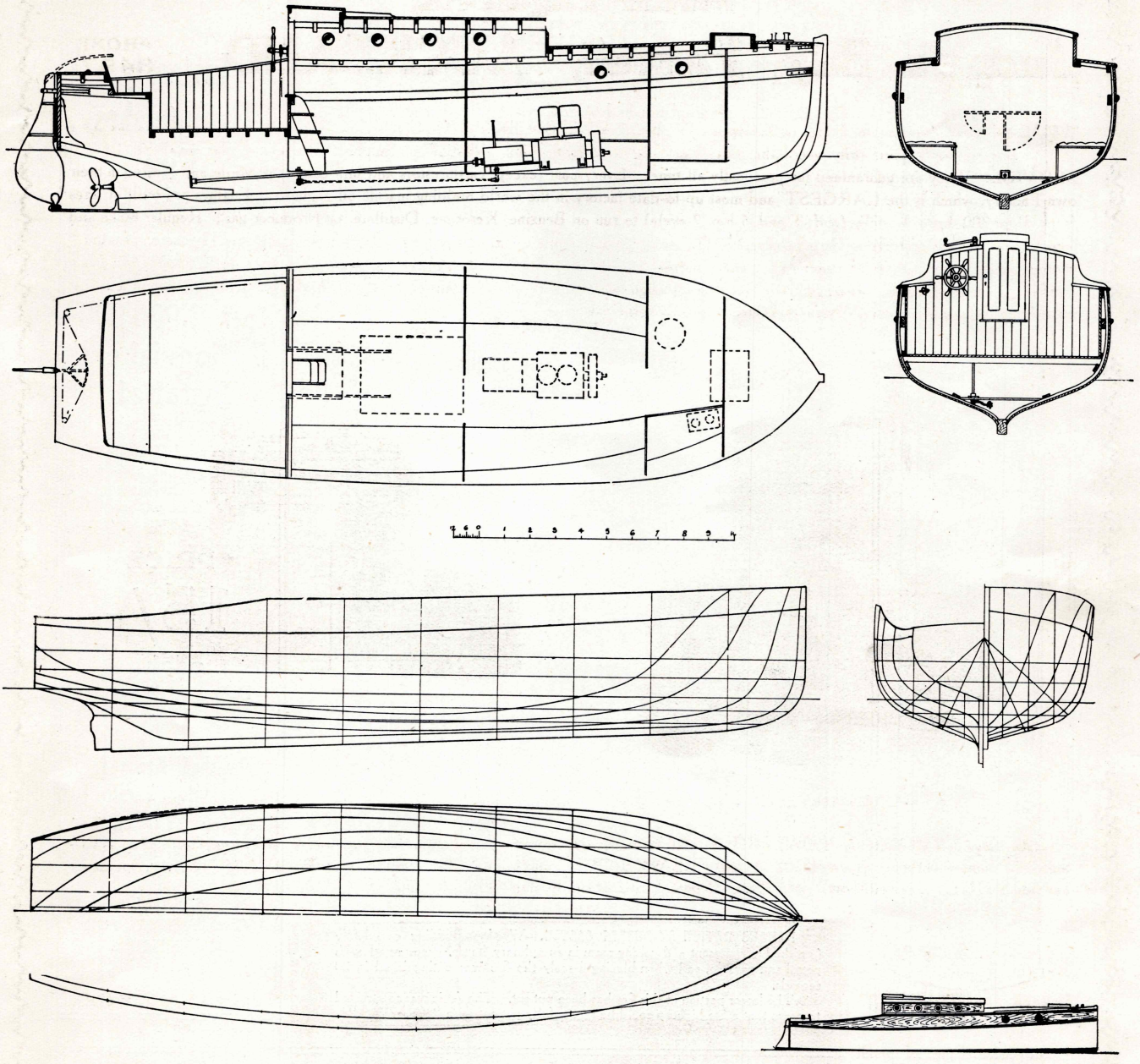
SATISFACTION GUARANTEED.

Write for Catalogue and 10 years' N.Z. Testimonials.

A 30 ft. Cruising Launch

Designed by S. T. Silver, Wellington

The accompanying plans show a powerful boat of the raised deck type, suitable for short cruises and fishing trips round the coast of New Zealand, but if used for bar harbours, would require the open cockpit decked over.



Although rather a beamy boat, the hull would drive easily at moderate speeds, and with a 14 h.p. engine should give a good account of herself.

The cockpit is self-bailing, 7 feet long, and extends the full width of the boat, and all engine controls are brought aft so that the boat can be easily operated by one person.

A coach roof over the main cabin increases the headroom and affords protection to the cockpit, besides making the deck available to passengers in calm and moderate weather, an advantage not to be obtained on the usual raised deck cruiser.

The main cabin has about six feet headroom, and is fitted with the usual seats, lockers, table, etc., and forward is the engine-room, 6ft. 3in. long, also fitted with seats, lockers, etc., thus providing comfortable sleeping accommodation for four persons. Forward of engine-room on port side is the toilet-room, with the usual fixtures, and on starboard side is a galley with stove, cupboards, etc., while right up in the bows is ample storage for ropes, chains, lamps, etc

Suitable scantlings would be: Keel and stem, jarrah sided, 4in.; ribs, 1¼in. by 1½in. red birch spaced 10in. centres; floors, 1½in. and 2in. at engine bed; planking, ⅞in. kauri; gunwale and bilge clamps, 3½in. by 1½in. tapered fore and aft; raised deck clamps, 3in. by 1¼in.; deck beams, 2½in. by 1¼in. sawn to camber; main deck, two skins, ⅜in.

"KYL-FYRE"

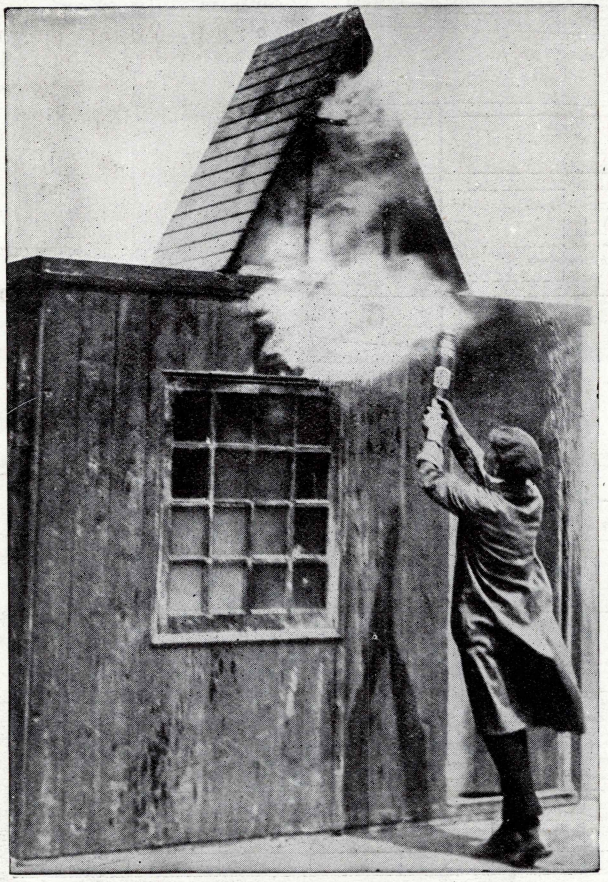
N.Z. Registered (No. 8488) Trade Mark.

Beware of Imitations—There is only one "KYL-FYRE."

THE BEST FIRE APPLIANCE FOR MOTOR CARS, MOTOR BOATS, &c.

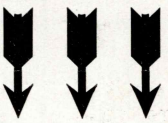
Also for Hydroplanes and Aeroplanes. Supplied to the War Office Air Battalion.

Passed by the British Board of Trade for Steamers.



DEMONSTRATION AT DUBLIN CASTLE.—Wooden Building completely furnished to represent a dwelling room in an ordinary house. Saturated with petrol and paraffin, aad when blazing fiercely the fire was extinguished in 20 seconds.

The lower portion of this fire has been put out. The Attic was constructed to prove that a fire high up could be successfully put out with "**KYL-FYRE.**"



Instantly Extinguishes Fire

Whether caused by the ignition of Gas, Paraffin, Petrol, Benzine, Naptha, Turpentine, etc.

Over 2,000,000 Extinguishers Installed.

Always ready for use.
Cannot get out of order.
Will last indefinitely.
Simple Manipulation.

PRICE

15/-

each.

Delivered, all charges paid.

Polished Brass for Motor Cars

Price 21/6 each.

Fittings, 3/6 per pair.

SPECIAL QUOTATIONS FOR QUANTITIES.

PRINCIPAL AGENTS:

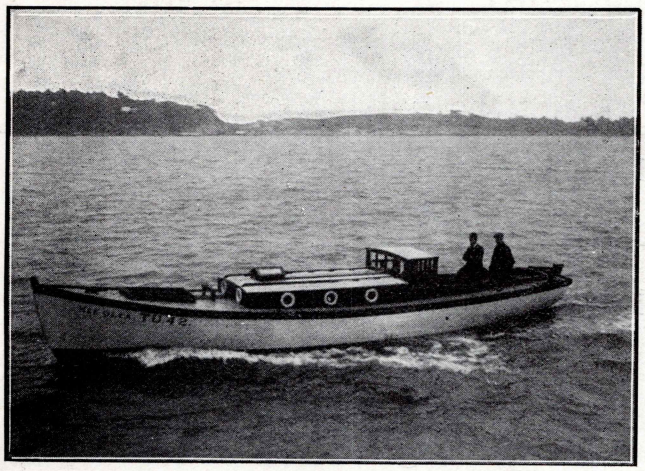
E. W. HURSTHOUSE & CO., Routh's Buildings, **WELLINGTON.**
Phone 1939. For Taranaki, Hawkes Bay, Wellington and northern part of the South Island.

M. W. S. LANE, (Master Mariner), Licensed Compass Adjuster, and Marine Surveyor, **50, Ferry Buildings, AUCKLAND.**
Phone 2571. For Auckland Province including Gisborne.

and $\frac{5}{8}$in.; and coach roof single skin, $\frac{3}{4}$in. covered with canvas. The principal dimensions are: Length (over all), 30 feet; beam (extreme), 8ft. 6in.; draught (extreme), 2ft. 6in.

The "Wee Olga"

This craft has been chosen as representing a very large class of boats employed in the fishing industry, along the east coast of the South Island from Timaru to Bluff.



A Typical Fishing Launch for the East Coast, South Island, fitted with 12-14 h.p. Viking Engine

These boats are used not only by the line fishermen, but also for light trawling, and often operate on banks twelve to fifteen miles out to sea.

Most of the Southern harbours are difficult for small boats, in many cases, bars with a heavy break having to be crossed at the entrance, and this, of couse, demands that the craft shall above all things be excellent sea boats.

It is no unusual thing also in the southern waters for a sudden blow to spring up, which means a run for home with all speed.

It will be noticed that everything in the way of top hamper is kept as low as possible, for these open sea fishing boats are frequently smothered for hours at a time in making land against an off-shore breeze.

Power, also, is essential, and although the craft shown is only about 30ft. long by slight beam, a 12/14 h.p. Viking engine is not considered to be any too much power for her.

A slight variation is sometimes made in the type of hull, depending on the class of entrance to the home harbour, and sometimes on the individual taste of the owner, and that is, that instead of a tuck stern, a whaleboat stern is built, but the main lines may be taken as typical.

Motor Boat Supplies

The difficulty of knowing just where to obtain the necessary equipment to outfit a launch at the beginning of a season, is always a problem that

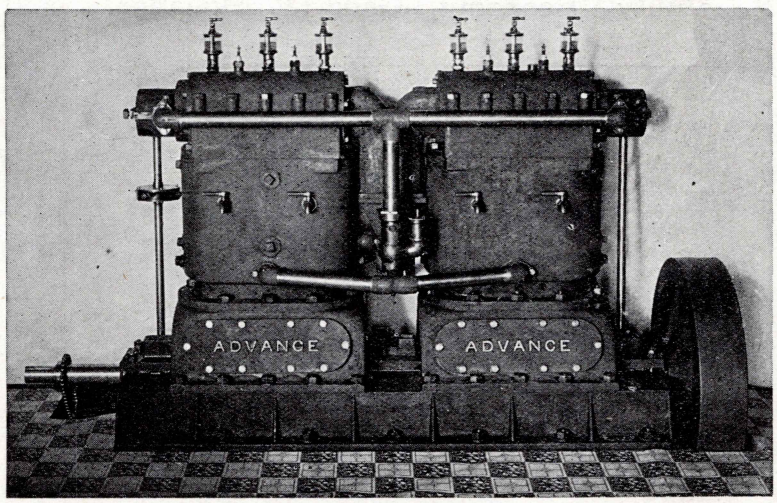
THE BROOKFIELD "ADVANCE" SILENT MOTOR

(PATENTED)

NO NOISE, NO SMELL, NO VALVES TO GRIND, BUT GREATER POWER AND ECONOMY THAN OTHERS

(See Article by Chas. C. Allen, A.M.I.M.E., page 91, October "Progress")

Note—This is an ideal engine for Electric Lighting on account of its perfectly steady running ¶ Write for particulars now



30 h.p. Heavy Duty Marine Type

Every working part of the "**Advance**" Motor is machine ground (the first in the Dominion) giving perfect fit and therefore perfect running

Sole Makers and Patentees:
Telephone 3933

BROOKFIELD BROS. St. Hellier's Bay AUCKLAND

'Bolinders' Semi-Diesel Crude Oil Engines

HEAVY DUTY. SLOW RUNNING.

SOME REASONS WHY YOU SHOULD BUY A 'BOLINDERS'

Because it is directly reversible, no electrical ignition, consumes cheapest quality kerosene or residue oil, no valves nor cams, no unreliable reverse gear, low running expenses, large overload, can be started quickly.

5 to 500 B.H.P.

6,000 of these Engines in use. Annual Output 1,500.

SOLE AUSTRALASIAN AGENTS:
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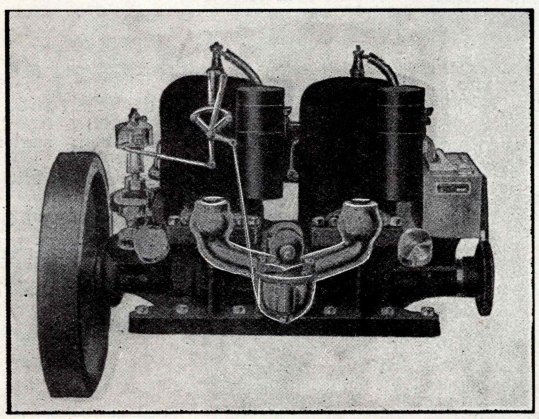
308 MORAY PLACE DUNEDIN.

For Reliability, Economy, Good Workmanship and Power



Take a GRAY MOTOR

GUARANTEE WITH EVERY ENGINE

Champion Launch of Otago—the "GRAY" equipped with 12 h.p. Gray Engine.

1911 :: 1912 :: 1913

When you buy a Gray Engine you buy everything except the Benzine Tank and Piping.

SINGLE Cylinder - - - - 3, 4, 6, 10 H.P.
DOUBLE Cylinder - - - - 6, 8, 12, 20 H.P.

NORTH ISLAND AGENTS - L. S. MAXWELL, AUCKLAND.

gives rise to a good deal of anxious thought on the part of most yachtsmen.

To know just what one wants is more or less of an easy matter, but to know just where to get it, in a dependable make, and at a reasonable figure, is quite another matter.

All the main centres have usually some one supplier, who knows, not only what to stock, but is usually a keen enthusiast, and one well used to the handling of the actual goods offered to fellow yachtsmen, and this combination not only ensures supplies of the best quality, but makes the advice of the salesman valuable to the amateur.

We have lately had an opportunity of overhauling the very complete stock of motor boat accessories stocked by Mr. W. J. P. McCullough, of No. 8 the Octagon, Dunedin, and we certainly think that it will have to be a very odd or unusual requirement that cannot be found among the complete list of articles offered.

Everything for the motor boat owner is apparently there, from a magneto to a lifebuoy, and the efforts of Mr. McCullough to suit his clients, reduces the tedium of choice to a minimum.

Setting a Coil Trembler

This is best done when it comes to the finer adjustments, while the engine is running, but if the coil is not in a condition to start up the engine on, it must be set in the first instance by ear.

After putting the firing points in contact, switch on the battery and gradually screw down the trembler screw until the coil begins to buzz.

This first low note is of no use for engine running purposes; go on slowly screwing down until the note reaches the shrillest pitch it will take without stopping altogether. Then come back about an eighth of a turn. Now throw the switch on and off as quickly as possible, and if the coil starts up each time you are right for starting; if not, slack back slightly more, for a coil will often continue to buzz when once started, but if the adjustment be too light, it will not always start up itself.

A low note on the vibrator, or trembler, means a yellow, weak spark at the plug, while the high note gives the intense blue spark that is wanted.

Erd Motors

Anyone requiring a reliable marine motor at a reasonable figure, cannot do better than write or call on J. G. Fleming and Co., 57 Victoria Street, Christchurch. A 10 h.p. Erd has been driving the hydroplane "Putiki" at over 20 miles per hour. This little boat has secured 21 first and 8 second prizes in three seasons' racing. There is no harder test than racing. 5 h.p. 2-cycle Erd motor, complete with propeller shafting, stern-bearing, coil, batteries, silencer, and everything required to fit in boat, price, £29. 25 h.p. 4-cylinder, 4 x 5 cast en bloc, valves enclosed, reverse gear on engine base, intake and exhaust manifolds waterjacketed, dual system magneto ignition, propeller, shaft, all complete, price £117. Other sizes and prices on application to J. G. Fleming and Co., 57 Victoria Street, Christchurch.

Vacuum Gargoyle Marine Motor Oil
has a World-wide Reputation
and is of the same high standard as
Gargoyle Mobiloils
the recognised standard for Automobile Lubricants.
If your dealer does not stock, write Vacuum Oil Co. Pty. Ltd.

McArthur, Millikin & Co.

Consulting and Manufacturing
. Steel Structural Engineers .

BRIDGES BUILDINGS
ROOFS &c. &c.

Office and Works : Kaiwarra, WELLINGTON

Engineers require Castings that are Reliable!

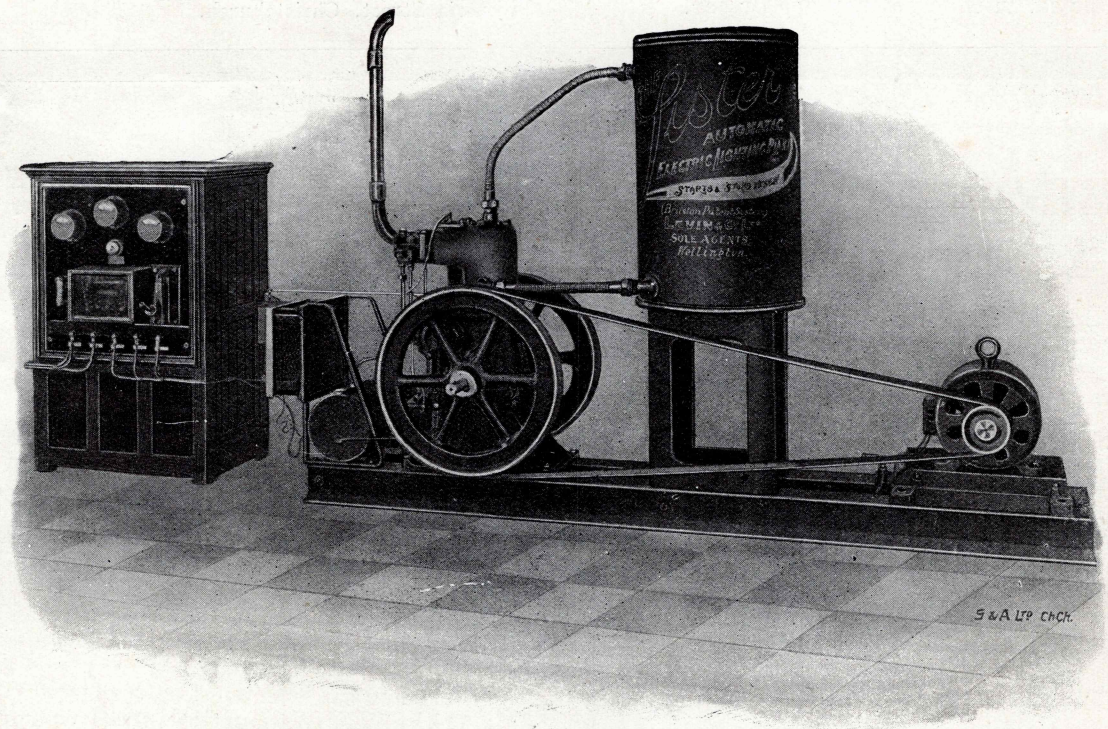
We specialise in the manufacture of
HIGH-GRADE CASTINGS
FOR THE TRADE

R. Buchanan & Sons, Ltd.
City Foundry 206-210 St. Asaph-st., Christchurch
Established 1865

The Lister-Bruston Automatic Electric Lighting Plant

STARTS ITSELF! **STOPS ITSELF!**

Does away with the necessity of large expensive Storage Batteries
Upon switching on lights in any part of the house the Engine starts, and when the lamps are turned off the plant stops automatically



Requires no Attention other than filling the Petrol Tank
The Cost of running this plant is under £20 per year

This Plant can always be seen working at the Office of

LEVIN & CO. LTD., WELLINGTON, Sole Agents for New Zealand

For further particulars apply to them, or

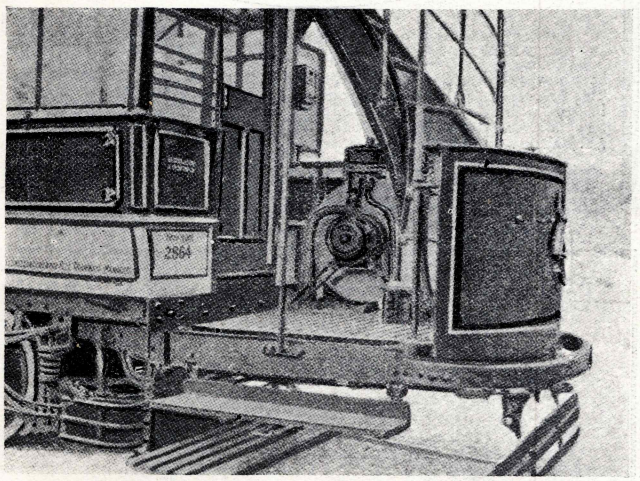
Messrs. BULFORD & DREWITT, Electricians, WELLINGTON

Engineering

Petrol-Electric Tramways

Installed in London

On several occasions we have referred to the petrol-electric combination for railway vehicles and motor cars, and now we are able to give a few particulars concerning the new petrol electric trams with which the L.C.C. is experimenting in East End of London. The system adopted is that advised by Messrs. W. H. Stevens, Ltd., of Maidstone. There are two electric motors for each truck, and these are geared to the axles by 6 to 1 reductions: the motors are of the series-wound interpolar type The maximum load on each motor is 20 b.h.p., which is considerably below their load capacity, and it is found that either of the electric motors is capable of running the car on level roads. The electric generator is of the same type as that used on the well-known 40 h.p. Tilling-Stevens petrol-electric omnibus, and is of the shunt-wound interpolar class, the maximum voltage being about 350. With regard to the petrol engine, this develops over 40 b.h.p. The engine and electrical generator are mounted on a pressed steel frame, which is suspended on the platform bearers at one

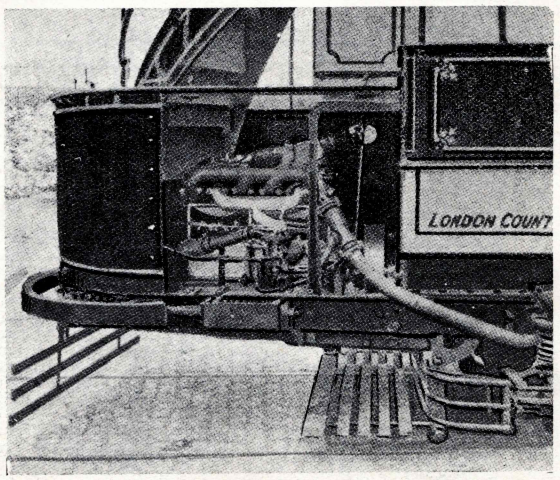


The Petrol-Electric Tramway installed by London County Council, showing the Solex Radiator and Electrically-driven Fan

end of the car, in such a way that the power unit is easily removable and can be exchanged in case of breakdown for a similar unit, in a very short space of time.

The control of the first of these three cars is effected by the engine throttle and a special electric controller; a reversing switch for the motor armatures is provided, and the cars are arranged to be operated from either end. No magnetic brake is provided on these first cars, but this provision can be obtained on future models, if necessary. The motor and generator are shown in the illustrations on this page.

The experiment of installing Messrs. Stevens' system will be watched by engineers throughout the world, as this system of petrol-electric propulsion has certain characteristics which give promise of its satisfactory adaptation on a large scale to certain classes of rail traffic. Three cars are to be fitted up with which to try exhaustive experiments.



Petrol-Electric Tramway installed by London County Council, showing the 40 h.p. Motor and Inter-polar Generator

New Electric Friction Hoist

Designed by Wellington Firm

Methods of raising goods from one floor to another are always of interest to those who have to handle packages or cases at a minimum of expense, and while the modern electric goods lift is installed in nearly every new building over two storeys in height, the need of some cheaper appliance has always been felt.

To meet the demand for a compact and unexpensive whip hoist suitable for warehouses, grain or wool stores, and for builders' work, Messrs. Turnbull and Jones, Ltd., of Wellington, have designed a new type of electric friction hoist, illustrated on next page, from which it will be seen the hoist is compact and self-contained, the electric motor and drum being mounted on a common cast-iron bedplate, the over-all dimensions of which are about 5ft. x 2ft. 6in. As the hoist is only about 30in. in height it can be placed in the roof directly

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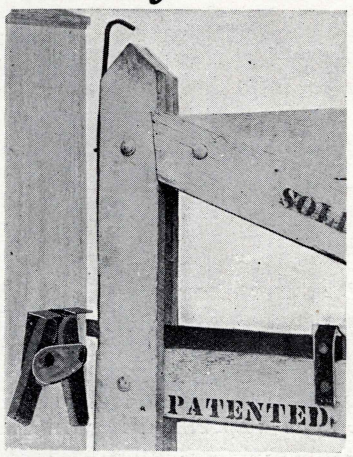
THE British Government and N.Z. Railways Standard Specifications call for an ELONGATION of not less than 20 per cent. The tests of Prof, Scott, M.I.C.E. (Prof. of Engineering at Canterbury College) showed the **Elongation of "IRMO" Iron** to be 22.8 per cent. and including fracture 36.8 per cent.

This Iron is fast replacing the imported brands in leading foundries and Government Works, its High and Uniform Standard of Quality being generally recognised.

Tables of Sizes and Weights on application.

Otago Iron Rolling Mills Co. Ltd.
GREEN ISLAND, DUNEDIN.

Two-way Gate Fastener *Automatic (Patented)*



ONE of the advantages of the above Fastener is that when used for Swing Gates it is impossible for gate when slammed from either direction to overshoot the catch. This latch is a thoroughly reliable fastening for every kind of farm gate. The ease with which a gate furnished with a Two-way Latch can be opened and closed by a horseman is a highly important feature.

Sole Manufacturers :

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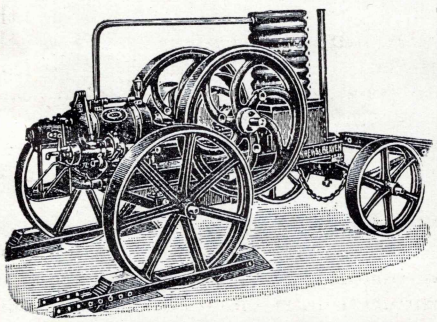

These Engines have a good reserve of power, and develop their rated horse-power at a low speed. They are therefore a bigger engine for the money than most. Can be fitted up for hoisting, pumping, well-driving; largely used for shearing and milking, and because of their simplicity are much appreciated by farmers.

Catalogues on Application

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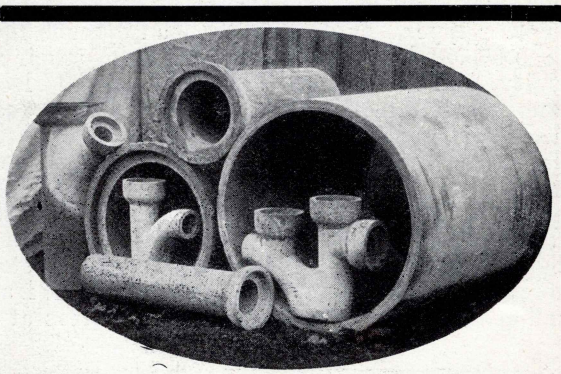
Canterbury Machine Works, Christchurch



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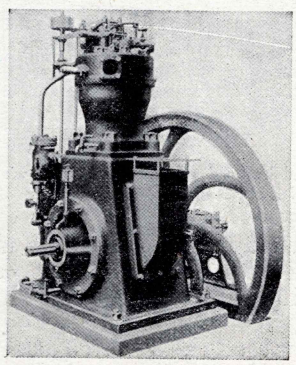

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which has none of the complications of the Diesel, but is just as

Wonderful in its Economy

No heating lamp is used

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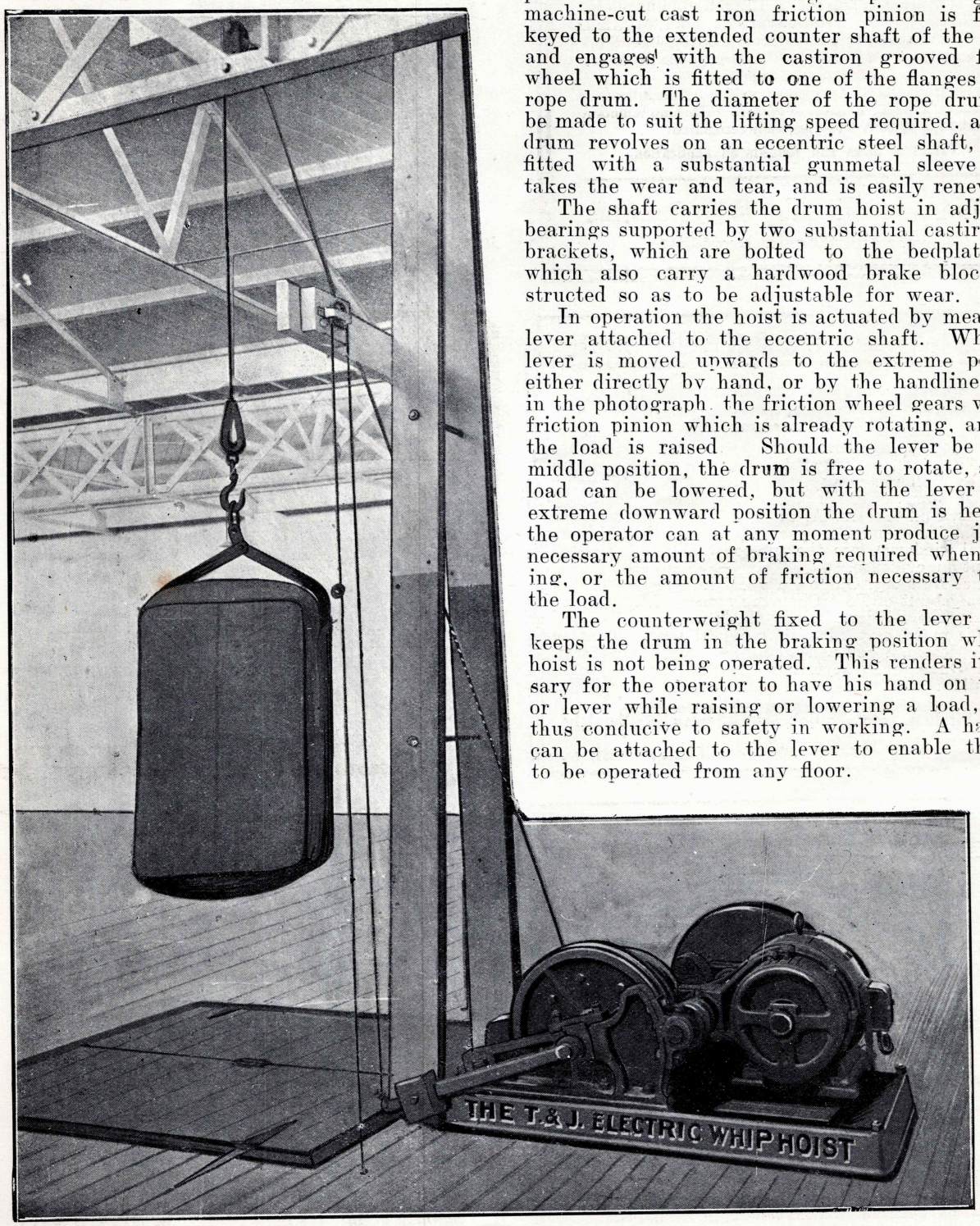
over the hatchway, or in any convenient position on the floor of the warehouse. For building contractors the hoist can be mounted on wheels, the whole of the switchgear being contained within the limits of size of the bedplate. In the illustration the hoist is shown as arranged to work in one of the large wool stores in Wellington.

The electric motor which drives this hoist is totally enclosed and dust proof, as are also the motor starter, gear wheels, and the "fool-proof" switch and fuses which protect the motor from overloads. A raw-hide pinion is keyed on to an extension of the motor shaft, and gears with a machine-cut wheel, which is fixed on a counter shaft carried in bearings suitably bolted to the motor frame. The bearings are of gunmetal and provided with lubricating caps. A grooved machine-cut cast iron friction pinion is feather-keyed to the extended counter shaft of the motor, and engages with the castiron grooved friction wheel which is fitted to one of the flanges of the rope drum. The diameter of the rope drum may be made to suit the lifting speed required, and this drum revolves on an eccentric steel shaft, and is fitted with a substantial gunmetal sleeve which takes the wear and tear, and is easily renewable.

The shaft carries the drum hoist in adjustable bearings supported by two substantial castiron side brackets, which are bolted to the bedplate, and which also carry a hardwood brake block constructed so as to be adjustable for wear.

In operation the hoist is actuated by means of a lever attached to the eccentric shaft. When the lever is moved upwards to the extreme position, either directly by hand, or by the handline shown in the photograph, the friction wheel gears with the friction pinion which is already rotating, and thus the load is raised. Should the lever be in the middle position, the drum is free to rotate, and the load can be lowered, but with the lever in the extreme downward position the drum is held, and the operator can at any moment produce just the necessary amount of braking required when lowering, or the amount of friction necessary to raise the load.

The counterweight fixed to the lever always keeps the drum in the braking position when the hoist is not being operated. This renders it necessary for the operator to have his hand on the line or lever while raising or lowering a load, and is thus conducive to safety in working. A hand line can be attached to the lever to enable the hoist to be operated from any floor.



An Electric Whip Hoist

Building Notes.

DUNEDIN.

Messrs. ANSCOMBE & COOMBS, A.R.I.B.A., have recently completed the Oban Hotel improvements. The interior of this hotel has been mostly remodelled. The main entrance hall and staircase have been shifted, the public and private bars enlarged, the commercial room is now in a different place, and many minor alterations and improvements have taken place, ash panelling in entrance hall and private bar. Mr. A. A. Aburn was the contractor.

Addition to Arts Building, Otago University.—This addition consists of three lecture rooms, with professors' rooms, etc. The style of the elevation is a free gothic, in keeping with the existing work, and the materials used were Leith bluestone, with Gay's stone dressings. Messrs. Wood and McCormack were the contractors.

Residence at Andersons Bay for S. D. Neill, Esq.—The walls are built of brick, rough-cast, the exposed woodwork is of Jarrah and the roof is covered with Marseilles tiles. Mr. G. N. Trott was the contractor.

The Chapman Building, Princes Street South.—The ground floor consists of two spacious shops, and the first floor is an addition to the Empire Hotel; Venesta panelling. A. A. Aburn, contractor.

Other works lately finished include additions to Opoho Presbyterian Church (J. M. Trott, contractor), and alterations to European Hotel (S. Aburn and Sons, contractors).

Works being erected include: The Students' Building, Otago University. This large masonry building is now well forward. The style and materials conform with the rest of the University buildings. Messrs. Fletcher Bros. are the contractors, and Mr. Thompson is the clerk of works.

Haynes building, corner of Princes Street and Moray Place.—The first portion of this extensive block of buildings is now well under way, the masonry walls being up to the fourth story. Messrs Wood and McCormack are the contractors, and Messrs. A. and T. Burt (structural steelwork), Bingham and Co. (masonry), and the Woolnough Co. (metal windows), are the sub-contractors whose work is at present in evidence.

Science Building, Otago Boys' High School.—This building is being built of Port Chalmers stone, with Gay's stone dressings. The window frames and sashes are metal, and the roof is to be covered with heavy slates in diminishing courses. Messrs. Wood and McCormack are the contractors.

South Dunedin Presbyterian Sunday School.—This is a brick building, with Marseilles tile roof. The plan consists of a large hall, with committee rooms, class rooms, library, kitchen, etc., adjoining. Messrs. Callender and McLeod are the contractors.

Residence, York Place.—This is an eight-roomed wooden residence with tiled roof. Mr C. C. Marsh is the contractor.

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Alterations to shop, corner of George Street and Octagon. A new entrance and shop windows are being placed to this shop. Mr. A. A. Aburn is the contractor.

The Beveley Trust Building, George Street.—This brick building consists of three shops, with dwellings over. The contract has lately been let to Messrs. Trott and Elliott.

Residence at Outram.—This is a large brick residence with tile roof. Mr. Muirhead is the contractor.

Tenders are at present being called for a brick and half-timbered residence at South Dunedin.

Among works in hand by the same architects, for which tenders are still to be called, may be mentioned: Two large warehouses in High Street, a building for an Invercargill firm near the Railway Station, an assembly hall at the Girls' High School, a rector's residence at the Boys' High School, an office building at Balclutha, a brick building in Lower Rattray Street, and several dwellings.

Mr. BASIL HOOPER, A.R.I.B.A., has just completed a residence and outbuildings near Mosgiel for Mr. Jas. Begg; cost about £2200. Brick, heated throughout by low pressure hot water system, lit by electricity, green slate roof; W. McLelland, contractor.

Residence at Dunottor, Roslyn, for Mr. T. C. Ross; cost about £1800; brick, fitted with steel casement and windows; green slate roof; A. T. Anderson and Son, contractors.

Residence in Mornington for Mr. E. L. Ashby; cost, about £800; brick, tiled roof; Claude B. Thomson, contractor.

Entrance gates and piers, etc., to Hon. Jas. Allen's residence, Clyde Street, Dunedin; cost, £100; Quennell Bros., contractors.

Some works in course of construction by the same architect are: Three houses at Otago Heads, for the Harbour Board's pilot staff; cost, about £1850; timber; tiled roofs; Love Bros., contractors Residence at Dunottor for Mr. G. Black, cost about £1000; timber, tiled roof; J. H. Moir, contractor. Methodist parsonage, St. Kilda; cost, about £1000; brick, tiled roof; G. H. Trott, contractor. Fourteen-roomed residence in Heriot Row, for Mr. G. R. Ritchie; cost, about £4000; brick, green slate roof, steel casements, etc; W. Farquharson, contractor. Residence at Pahiatua for Mr. McSherry; timber, tiled roof; cost, about £950. Residence at Puketeraki, for Mrs. Te Tau; timber; cost, about £650; R. Templeton, contractor. Additions to the Otago Tallow and Bye-Products Co. building, at Burnside; cost, about £700; Sykes and Massetti, contractors. Additions to residence in High Street, for Mrs. Durrant; cost, about £300; Loan and Watson, contratcors.

It is hoped that the erection of the new Dunedin Anglican Cathedral, the supervision of which is in Mr. Hooper's charge, will be proceeded with before long.

Mr. E. W. WALDEN has recently completed the N.Z. Clothing Factory's building, illustrated elsewhere in this issue. The same architect has the following work in hand: The Theatre Building, George Street; new show-room and fronts for the Drapery Supply Association; manse and Sunday School being erected for the Congregational Church, View Street; additions to the Provincial and Bowling Green Hotels, and residence for A. Swan, Esq.

Mr. H. MANDENO reports that the King Edward Technical College is making very good progress. The bricklayers are well on to the second storey. Everything is working very smoothly now, and the contractor (Mr. McLellan) is confident that he will finish well inside of his contract time. The contract price is £26,421. The R. S. Reynolds Free Kindergarten is practically completed; the painters are just putting the finishing touches to it; S. Aburn and Sons, contractors; price, about £1000. Marseilles tiles in both buildings.

Block of eight shops and offices at Balclutha are just completed for J. W. H. Clark; Bragg Bros. are the contractors; price, about £4000; brick.

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ALL NEW ZEALANDERS VISITING LONDON should read the **"British Australasian," 6d weekly**—an illustrated paper containing mail and cable news from New Zealand, and news of New Zealanders in Europe and at home.

New Zealanders are cordially invited to visit the **"British Australasian"** Reading Room at the offices, 115 High Holborn, London, W.C., where they can see the home papers, meet their friends, use the telephone, and obtain information without charge.

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We desire to bring before your notice the fact that we have patented a new method of putting in Foundation Piles for Buildings, etc., which has been proved most economical in cost, simple in operation, and accurate in results. No large pile driving engine required, no breaking off or building up of piles, no waste of timber, no labour for pumping.

See notice of work done at "Cargen" in Auckland Concrete Notes in April "Progress." If you are interested write at once or call on

Sutcliffe & Mounce
Boring & Blasting Engineers, 17 Gladstone Bldgs, Auckland

Mr. I. Lyall is the builder for extensions to Drapery Store, for W. Guest, Balclutha; price, about £1800; brick.

Mr. Leo Gibbs, builder, has just completed residence for C. W. Pattello, Esq., in South Place, and the same builder has just commenced the foundations for a residence in George Street for Mr. McMillan; cost, about £1100; brick and Marseilles tiles.

Tenders are being called for residence in Balclutha, and plans are being prepared for a large residence in Oamaru, and for extensive alterations to residence in Mornington.

MESSRS J. AND W. FAULKNER, WIREWORKERS, of Dunedin, call attention to their numerous manufactures in our advertising columns this issue. We are always pleased to see our industries growing, and hope at a later date to illustrate some of this firm's work.

The following formidable list is some recently completed work by them:—Elevator enclosure, grille work, gates and cars of G.P.O., Auckland; Ferry Buildings, Gleeson's Buildings, Public Trust, Grand Hotel, Strand Arcade, Auckland; G.P.O., King's Chambers, "N.Z. Times," G. Winder, Kirkcaldie and Stains, and Hannah's Buildings, Wellington; Warner's Hotel, Christchurch; Ballantyne's and Hydro Grand Hotel, Timaru; National Bank, Hallenstein's Buildings, N.Z. Express Co., Butterworth Bros., National Insurance, Jamieson's Buildings, Dunedin; Grand Hotel, Invercargill.

The same firm have carried out important contracts for wrought iron gates, etc., notably the gates and pillars for Wellington Harbour Board; Symonds Street Reserve, Auckland; Baring Square, Ashburton; Bayfield Park, Auckland; Technical School, Wanganui; Market Reserve and Triangle, Dunedin; and now have in hand the entrance gates pillars and railings for the Auckland Racing Club, Ellerslie.

The firm makes all classes of ornamental wirework, and have a very extensive iron and brass bedstead business. They make hospital bedsteads, and all steel furniture, garden seats, tree guards, woven wire and iron for reinforcing concrete.

THE NEW ZEALAND CLOTHING FACTORY.

The splendid building erected for the New Zealand Clothing Factory at the corner of the Octagon, Dunedin, and illustrated on page 585, has been completed in record time for a stone building. Its finished appearance adds to the splendid reputation "K" brand Oamaru stone has so long enjoyed, and it is certain that the imposing frontages will induce many architects to favour this stone. Its well-known qualities of cohesiveness and comparative resistance to moisture absorption, and its fine weathering qualities, have made the "K" brand extremely popular, and the N.Z. Clothing Factory's new building will certainly be like many of the oldest buildings in Dunedin, a standing testimony to its superiority over most free limestones. The whole of the work has been supplied by H. S. Bingham and Co., Ltd., from their "K" brand quarry at Teschemaker, and the stone dressed at their yard in Dunedin.

WELLINGTON.

New Parliamentary Buildings—The quantities are not expected to be out till the 15th inst., and the question arises whether the Government will not give some extension of time for receipt of tenders. On communicating with the Department, the only satisfaction we could obtain was that the Government would announce through the papers any postponement. In all probability a postponement will have to be granted to enable builders in other centres to send in tenders if they so desire.

An interesting comparison of figures is shown in the annual report of the Building Inspector for 1912-3.

In the city area 266 permits were issued for the erection of new buildings, and for alterations and additions to existing buildings, as compared with 318 permits for the year ending 31st March, 1912. An analysis of the buildings (with last year's figures in parenthesis) is as follows:—Dwellings 46 (52), shops and dwellings 4 (6), business premises 17 (11), halls 1 (0), theatres 1 (3), schools 0 (1), hospitals 0 (1), alterations and additions 201 (218). In some instances the permits issued were for two buildings.

The total estimated value of the work is £202,608, as against £183,330 for the preceding year.

The most prominent works were Aulsebrook and Co.'s warehouse, Victoria Street; Harbour Board shed "Z," Waterloo Quay; Cathie and Sons' factory, Marion Street; Whitcombe and Tombs, reinstatement, Lambton Quay; Bank of New Zealand, Manners Street; Hospital Board's out-patients' building, Hospital Road; Tea Kiosk, Oriental Bay;

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There is a marked difference in quality between the cheaper makes as compared with "ETERNIT" which represents the highest quality only, and is manufactured under Hatschek's original patent.

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J. Smith and Co's building, Dixon Street; Oil Store, Hutt Road; T. G. Macarthy estate, warehouse, Wakefield Street; Picture theatre and additions Duke of Edinburgh Hotel, Manners Street; Opera House, Courtenay Place.

WANGANUI.

The Wanganui County Council has purchased a section (occupied by J. Lain Poy's laundry), in Campbell Place, and proposes to erect offices thereon. The size of the section is 40ft. by 66ft., and plans are being prepared for a two-storey building in brick and stucco.

The proposed Wanganui Orphanage is hung up in the meantime, owing to want of funds, £1000 being still required. The residents are endeavouring to get ten persons to give £100 each to complete the scheme, as the Government refused the application for a grant for the sum required. Five persons were soon found and it is anticipated that another five will be easily obtained

NAPIER.

The building trade in Napier has been slack for some time past, but there are signs of renewed activity. Plans for new buildings and alterations to existing buildings are now being prepared, the contemplated expenditure running between £15,000 and £20,000.

HAWERA.

Hawera is now considering the advisability of submitting to the ratepayers a proposal for raising a loan (in conjunction with the £30,000 loan) for building a municipal opera house. The matter is under consideration.

Engineering Notes

The construction of the new reservoir and filter beds at Westmere, which has been going on for a long time, seems to be in danger of being hung up unless the ratepayers sanction another loan. At a special meeting of the Borough Council held recently the Borough Engineer reported that the estimate (made by his predecessors) was too low, and that the gravel supplied for the concrete work was so poor in quality that after washing only one yard remained out of three. A section of the Council appeared disposed to lay the blame for this state of affairs elsewhere than on the gravel, but others stated that a waste of money had been going on, and hinted that there was some mystery behind the gravel question. An amendment to cut down the amount of the loan by £1000 was lost, and the council carried the Works Committee's recommendation that ratepayers be asked to sanction another loan of £7000. Notice of motion was given that the engineer be instructed to supply a full report on the state of affairs, and it is more than likely that there will also be an agitation for a committee of inquiry into the whole affair.

The Waverley Town Board have accepted tenders approximating £8500 for water and lighting works. The successful tenderers were:—Turnbull and Jones (Wellington), hydro-electric pumping and lighting plant, £3514; G. Burrell (Wanganui), main laying, £3089; W. Jones (Westport), water tower, £1195; Walpole and Co. (Wanganui), concrete dam, £690.

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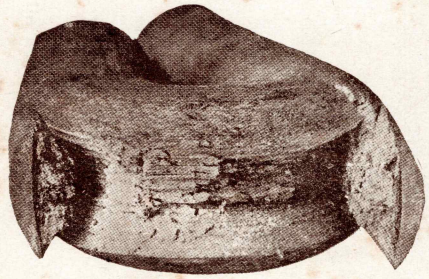

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Published by the Proprietors, HARRY H. TOMBS LTD., Wellington, and Printed by WHITCOMBE & TOMBS LIMITED. Wellington, Christchurch and Dunedin. August. 1913.